1986 Research Catch and Effort Data on Nearshore Reef-Fishes in British Columbia Statistical Areas 12, 13 and 16

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1986 RESEARCH CATCH AND EFFORT DATA ON NEARSHORE REEF-FISHES IN BRITISH COLUMBIA STATISTICAL AREAS 12, 13 AND 16

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ABSTRACT

Richards, L. J. and A. J. Cass. 1987. 1986 research catch and effort data on nearshore reef-fishes in British Columbia Statistical Areas 12, 13 and 16. Can. MS Rep. Fish. Aquat. Sci. 1903: 119 p.

In 1984 we began a research program based on the need for stock assessments of nearshore reef-fishes in the Strait of Georgia. The 1986 results from minor statistical areas (MSA) 12, 13 and 16 are presented in this report, and are compared with the 1984 and 1985 results from MSA 16, and with a small sample from the sport fishery in MSA 12 and 16. Research CPUE data were collected by angling with trolling rods and reels, using frozen herring as bait. Three depth intervals (5-40 m, 41-70 m, and 71-100 m) were fished at most of the sites. Depth did not affect CPUE in MSA 12, but CPUE in MSA 13 and 16 was greater over 5-40 m. In among-area comparisons at each depth interval, MSA 13 had the highest CPUE over 5-40 m and 71-100 m, and MSA 12 had the highest CPUE over 41-70 m. Quillback rockfish, copper rockfish and lingcod were the dominant species in the catch. Species composition varied with depth and statistical area. The greatest number of species were caught in MSA 12 and the fewest in MSA 13. Proportionately more quillback rockfish were sampled in the research catch than in the sport landings. Quillback rockfish, yelloweye rockfish, kelp greenling and lingcod caught in MSA 12 had a larger size than those caught in MSA 13 or 16. The largest copper rockfish were caught in MSA 13. Sizes of fish landed by the sport fishery tended to be larger than those caught during the research surveys. Smaller lingcod were caught during surveys in 1986 than in 1985.

RESUME

Richards, L. J. and A. J. Cass. 1987. 1986 research catch and effort data on nearshore reef-fishes in British Columbia Statistical Areas 12, 13 and 16. Can. MS Rep. Fish. Aquat. Sci. 1903: 119 p.

En 1984, les auteurs ont mis en oeuvre u programme de recherche basé sur le besoin d'évaluations des stocks de poissons de récif côtiers dans le détroit de Géorgie. Le présent rapport expose les données recueillies en 1986 dans les zones statistiques secondaires (ZSS) 12, 13 et 16; ces données sont comparées à celles recueillies dans la ZSS 16 en 1984 et 1985 ainsi qu'à petit échantillon des captures sportives réalisées dans les ZSS 12 et 16. Les données expérimentales sur les PUE ont été obtenues par pêche à la ligne avec des cuillères appâtées de hareng congelé. Trois intervalles profondeur (5-40 m, 41-70 m et 71-100 m) ont été explorés à la plupart des sites. La profondeur n'avait pas d'incidence sur les PUE dans la ZSS 12; par contre, les PUE dans les ZSS 13 et 16 étaient plus élevées dans l'intervalle 5-40 m. Pour ce qui est des comparaisons entre les zones à chaque intervalle de profondeur, les PUE étaient plus élevées dans les intervalles 5-40 m et 71-100 m dans la ZSS 13 tandis que dans la ZSS 12, les PUE étaient plus importantes dans l'intervalle 41-70 m. Le sébaste à dos épineux, le sébaste cuivré et la morue-lingue étaient les principales espèces capturées. La composition spécifique variait selon la profondeur et la zone statistique. Le plus grand nombre d'espèces a été capturé dans la ZSS 12 et le plus faible, dans la ZSS 13. Les sébastes à dos épineux ont été échantillonnés en plus grand nombre dans les captures expérimentales que dans les captures sportives. La longueur du sébaste à dos épineux, du sébsate aux yeux jaunes, du sourcil de varech et de la morue-lingue capturés dans la ZSS 12 était plus grande que celle des mêmes espèces prises dans les ZSS 13 et 16, tandis que le plus gros sébaste cuivré a été capturé dans la ZSS 13. La taille des poissons capturés par les pêcherus sportifs tendait à être plus élevée que celle des poissons capturés au cours des relevés expérimentaux. La morue-lingue capturée en 1986 était plus petite par rapport aux relevés de 1985.

INTRODUCTION

This report summarizes research catch and effort data on nearshore reef-fishes collected during 1986 as part of a stock assessment program for these fishes. We also compare 1986 data with 1984 and 1985 data from the same areas, and with data from the sport fishery. Surveys were conducted between Vancouver Island and mainland British Columbia, in minor statistical areas (MSA) 12, 13 and 16. We used angling techniques that had been developed during 1984-1985 (Richards et al. 1985a, Richards and Cass 1985b). The MSA 16 sites had previously been surveyed with the submersible PISCES IV in 1984 (Richards and Cass 1985a) and by SCUBA in 1984 and 1985 (Richards et al. 1985b, 1986). The objectives of the 1986 angling work were to obtain research fishing data to (1) compare with the observations made by PISCES and SCUBA, (2) compare with catch data from the sport fishery, (3) compare with sales-slip and logbook records from the commercial fishery, (4) examine inter-annual variability in angling CPUE among sites, (5) examine among-site differences that may be related to exploitation, and (6) estimate relative abundance, species composition and the size distributions of rockfish and lingcod in these areas.

METHODS

FISHING SITES AND DATES

Fishing sites in MSA 12 (Fig. 1a) were chosen by dividing the shoreline area accessible by boat within 3/4 h from Telegraph Cove into 1-min-latitude by 1-min-longitude blocks and choosing blocks at random. Two additional sites (12-65 and 12-66) were added, based on local recommendation. Sites were surveyed between June 17-26, 1986 from M/V CABEZON, a 7-m herring skiff and from a 5-m Dunlop inflatable. Two anglers operated from each boat, and each boat surveyed each site.

Fishing sites in MSA 13 (Fig. 1b) were chosen from known areas of commercial fishing. The four southern sites were surveyed between June 2-5, 1986, and all sites were surveyed between July 28-31, 1986. Three anglers operated from the M/V CABEZON at all times.

Fishing sites in MSA 16 were the sites surveyed in 1985 (Fig. 1c) (Richards and Cass 1985b). These sites were surveyed between July 9-17, 1986 from the M/V CABEZON or the Dunlop inflatable. Two anglers operated from each boat. Due to generally poor weather conditions, it was not possible for each boat to survey each site.

SURVEY METHODS

Fishing methods were similar to those described in Richards and Cass (1985b). We used trolling rods and reels and 12-cm, frozen bait herring, except for June 25-26 when we used 10-cm, frozen bait herring. The boat was allowed to drift with the motor used occasionally to keep the boat in position against a strong current. Three depth intervals were surveyed at most sites: 5-40 m, 41-70 m, and 71-100 m. Both boats were equipped with an echo sounder.

Fishing effort was defined as the sum of the fishing times of each angler, measured by stopwatch, from the time that the line was in position near the bottom, until a fish was hooked or the line was hauled in. Most records represented a fishing effort of at least 0.3 h. Fishing was terminated sooner if weather or current conditions were unfavorable, or if more than about 10 rockfish were caught. We attempted to replicate fishing at a depth interval each day at a site, and to survey each site on two different days.

A catch was recorded if the fish was brought to a depth at which species identification could be visually determined. All landed rockfish and lingcod were measured for fork length, sex and maturity. Otoliths were collected from most species of rockfish and fin rays were collected from most lingcod for age determination. Conductivity, temperature and salinity were recorded from the M/V CABEZON on most fishing days with an Applied Microsystems CTD-12. The conductivity ratio was converted to practical salinity using the algorithm in Folonoff and Millard (1983).

SPORT DATA

Whenever possible, we sampled landed catch from the sport groundfish fishery for species composition, fork length, sex and maturity. Samples were collected from the marina at Telegraph Cove (MSA 12) and from Duncan Cove Marina, Garden Bay (MSA 16). We were unable to collect samples from MSA 13.

RESULTS AND DISCUSSION

RAW DATA

Appendix 1 gives common and scientific names for all fish species captured and describes the codes used in the remaining tables. Appendix 2

describes codes used in Appendix 3. Appendix 3 summarizes the data collected on individual records over the field season, including time, location and depth of fishing, weather conditions, and the number of fish caught of each species. Fishing time is reported as the sum of the fishing times of each angler. Appendix 4 describes rockfish and lingcod maturity codes. Data on individual fish are presented in Appendix 5 for the research data and Appendix 6 for the sport data. Unfortunately, it was obvious from preliminary analyses of the weight-length relationship, that recording errors were made in length or weight for some fish listed in Appendix 5. These cases are identified in Appendix 5 and then excluded from further analyses.

VARIATION IN CPUE

Table 1 provides a summary of effort, catch and CPUE for each depth interval at each site. For all species combined, CPUE ranged from 0-37.5 fish•h^{-1} for MSA 12, from 5.9-36.8 fish•h^{-1} for MSA 13, and from 0.7-18.7 fish•h^{-1} for MSA 16. Total rockfish CPUE ranged from 0-30.7 fish•h^{-1} for MSA 12, from 3.5-32.8 fish•h^{-1} for MSA 13, and from 0-15.6 fish•h^{-1} for MSA 16. Total rockfish CPUE was higher in MSA 16 in 1986 compared to 1985 for 8/10 of the sites over 5-40 m, 6/9 of the sites over 41-70 m and 2/7 of the sites over 71-100 m. Overall, the difference is significant ($n=26$, $p<0.05$, paired t-test). The increase in CPUE in 1986, especially for shallow depths, may be due in part to a learning effect. Three of the four anglers had participated in the 1984 and 1985 surveys in MSA 16. It was probably more difficult to locate and remember productive areas at the deeper depths.

There are many factors that could account for variation in CPUE. We tested for the effects of weather conditions, sea surface conditions, surface current, tidal phase, vessel, motor on or off, and depth. We used Kruskal-Wallis tests on CPUE from records with a fishing effort of at least 0.2 h. Tests were repeated for quillback rockfish CPUE, total rockfish CPUE and total CPUE. The effects of sea surface conditions, tidal phase or motor on or off were not significant. None of the remaining effects were consistently significant ($p<0.05$) for all areas. For MSA 16 only, total CPUE, but not total rockfish CPUE, was higher on sunny days ($p<0.05$). The effect of surface current was significant ($p<0.05$) for total CPUE in MSA 13 and for all CPUE measures in MSA 16. CPUE tended to be higher for moderate currents, and lower if there was no current or for strong currents. All CPUE measures were higher ($p<0.01$) for fishing from the inflatable in MSA 16, probably because the two vessels visited different sites in MSA 16. Vessel effects were not significant for MSA 12 where the vessels visited the same sites.

Depth did not have a significant effect on CPUE in MSA 12. However, rockfish CPUE and combined CPUE were significantly higher ($p<0.01$) over 5-40 m in MSA 13 and MSA 16. Because of these depths effects, we divided the data into depth intervals to test for differences among statistical areas. All CPUE measures were significantly different ($p<0.01$) among statistical areas, except for rockfish CPUE over 71-100 m, which was only weakly significant

(p=0.053). MSA 16 had the lowest CPUE in all cases. MSA 13 had the highest CPUE over 5-40 m and over 71-100 m. MSA 12 had the highest CPUE over 41-70 m. The high score for MSA 13 is somewhat counter-intuitive, as the sites we fished had been heavily exploited by the commercial fishery. However, in MSA 13 we surveyed known productive sites only, compared to randomly chosen sites in MSA 12. This may have resulted in a lower median CPUE for MSA 12 than for MSA 13.

SPECIES COMPOSITION

There were obvious differences in species composition between statistical areas (Table 2, Appendix 3). The greatest number of species were caught in MSA 12, and the fewest were caught in MSA 13. The overall dominant species were quillback rockfish, copper rockfish (except MSA 12) and lingcod. Other species included spiny dogfish, ratfish, chinook salmon (MSA 12 only), Pacific cod, Pacific tomcod (MSA 12 only), silvergrey rockfish (MSA 16 only), dusky rockfish (MSA 12 only), greenstriped rockfish (MSA 16 only), yellowtail rockfish, black rockfish (MSA 12 only), tiger rockfish (MSA 16 only), redstripe rockfish (MSA 12 only), yelloweye rockfish, kelp greenling, red Irish lord (MSA 12 only), great sculpin (MSA 12 only), cabezon (MSA 13 only), Pacific sanddab (MSA 16 only), flathead sole (MSA 12 only) and rock sole. The catch of dusky rockfish extends the range southward from Hecate Strait for that species (Richards and Westrheim 1986).

Species composition was affected by depth. Copper rockfish and tiger rockfish were always caught over 5-40 m, and dusky rockfish and black rockfish were always caught over 5-70 m. Chi-square tests were used to examine the effects of depth on species composition for each statistical area. All results were significant ($p<0.001$, Table 3). In MSA 12, the proportion of yellowtail rockfish and lingcod in the catch decreased, and the proportion of dogfish increased with depth. In MSA 13 and MSA 16, the proportion of copper rockfish in the catch decreased and the proportion of quillback rockfish increased with depth.

Species composition differed between 1984, 1985 and 1986 over 5-40 m in MSA 16 (Table 4). Fewer dogfish and lingcod and more quillback rockfish were caught in 1986 than in 1984 and 1985. Sample sizes were too small to test over other depth ranges.

Species composition of the sport fishery is shown in Table 5. In MSA 12, the dominant species were yellowtail rockfish, quillback rockfish, and yelloweye rockfish. In MSA 16, the dominant species were copper rockfish, quillback rockfish and lingcod. The sport fishery in MSA 12 was particularly interesting, as the rockfish composition was very different from that of the research catch. Bocaccio were not present in the research catch. The incidence of quillback rockfish was lower in the sport than in the research landings in both statistical areas. Fishing method obviously has a major effect on species composition of the catch.

SIZE COMPOSITION

Length-frequency histograms are displayed in Figure 2 for copper rockfish, yelloweye rockfish, kelp greenling and lingcod, in Figure 3 for yellowtail rockfish, and in Figure 4 for quillback rockfish. Mean lengths and weights (where measured) corresponding to Figure 2 and 3 are in Table 6, and mean lengths and weights corresponding to Figure 4 are in Table 7. Mean lengths of species landed by the sport fishery are in Table 8.

We used Kruskal-Wallis tests to compare median lengths for each species among statistical areas over each depth interval, and among depth intervals within each statistical area. For quillback rockfish, median length increased with depth ($p<0.001$) for each statistical area. There were also significant differences in the median length of quillback rockfish among statistical areas over each depth interval. The largest quillback rockfish were caught in MSA 12, and the smallest in MSA 13, with MSA 16 intermediate ($p<0.001$). Differences among statistical areas were also significant for copper rockfish ($p<0.001$), yelloweye rockfish ($p<0.001$), kelp greenling ($p<0.05$) and lingcod ($p<0.001$). For copper rockfish, median length was greatest in MSA 13, followed by MSA 12 and 16 in decreasing order of size. For yelloweye rockfish, kelp greenling and lingcod, median length was greatest in MSA 12, followed by MSA 13 and 16 in decreasing order of size.

Wilcoxon two-sample tests were used to compare median lengths of each species that were both caught in the surveys and landed by the sport fishery in each statistical area. Where there was a significant difference, larger fish were landed by the sport fishery. The one exception was black rockfish, where larger fish were caught in the surveys. Differences in median length were significant for copper rockfish in MSA 16 ($p<0.001$), quillback rockfish in MSA 12 and 16 ($p<0.001$), black rockfish in MSA 12 ($p<0.01$) and lingcod in MSA 12 and 16 ($p<0.001$). There were no significant differences ($p>0.05$) for yellowtail rockfish or yelloweye rockfish in MSA 12.

Wilcoxon two-sample tests were also used to compare median lengths of each species caught in 1985 and 1986 in MSA 16. There were no significant differences between years for copper rockfish, greenstriped rockfish, or yelloweye rockfish. Combining over all depths, smaller quillback rockfish were caught in 1986 ($p<0.01$), but there were no differences between 1985 and 1986 in median length within each depth interval. Smaller lingcod were caught in 1986 ($p<0.05$).

Weight-length relationships for copper rockfish, yellowtail rockfish, MSA 12 quillback rockfish, yelloweye rockfish and lingcod are presented in Figure 5 and Table 8. There were no differences between males and females in the weight-length regressions ($p>0.05$, F-tests), and with the exception of quillback rockfish, there were no differences among statistical areas in the weight-length relationship for combined male and female data. For quillback rockfish, statistical area differences were significant ($p<0.05$), and weight-length data are given by statistical area in Table 8.

TEMPERATURE AND SALINITY

Temperature and salinity profiles for the study sites are shown in Figures 6 and 7 for MSA 12 and MSA 13, respectively. Unfortunately, no data were available for MSA 16. In general, the MSA 13 profiles show a well-mixed water column. In some cases, there is no change in temperature or salinity, and where there is a change, it tends to occur within the top 10 m of the water column. The MSA 12 sites have more variable profiles, ranging from a highly stratified to a well-mixed water column.

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Table 1. A summary of CPUE (kg/h) by species, for total rockfish catch, and for total catch for each depth interval at each site. N, number of records for that depth and site; NF, number of fish caught.

DEP[a]	SITE	N	NF	EFFORT (h)	CPUE by Species[b]				TRock	Total
					CO	QB	YE	LC		
1	12004	4	20	1.43	2.79	2.09	0.00	0.00	5.58	13.95
1	12006	4	40	1.37	0.00	19.03	0.00	2.93	22.68	29.27
1	12016	4	47	1.33	1.50	15.75	0.00	3.00	28.50	35.25
1	12022	5	38	1.70	0.00	11.76	0.59	0.00	17.65	22.35
1	12031	4	15	1.47	0.00	6.14	0.00	1.36	6.14	10.23
1	12036	4	14	1.40	0.71	2.86	0.00	0.00	3.57	10.00
1	12038	3	22	1.00	0.00	18.00	0.00	1.00	19.00	22.00
1	12042	4	6	1.40	0.71	0.71	0.00	0.71	1.43	4.29
1	12065	4	50	1.33	1.50	13.50	0.00	1.50	30.75	37.50
1	12066	5	17	1.80	1.67	4.44	0.00	0.56	7.78	9.44
1	13002	4	46	1.25	18.40	14.40	0.00	3.20	32.80	36.80
1	13003	5	35	1.90	6.84	7.89	0.00	3.68	14.74	18.42
1	13005	4	47	1.90	3.16	14.74	0.00	3.16	17.89	24.74
1	13006	3	38	2.25	6.22	6.22	0.00	3.11	12.44	16.89
1	13007	4	20	1.60	1.25	8.75	0.00	1.88	10.00	12.50
1	13008	4	42	2.00	9.50	4.50	0.00	4.50	14.00	21.00
1	16073	4	26	1.60	1.25	11.87	1.25	1.88	14.37	16.25
1	16102	4	30	1.60	5.63	9.37	0.63	3.13	15.62	18.75
1	16113	4	28	1.60	6.25	0.63	0.00	6.25	6.88	17.50
1	16166	4	11	1.93	1.03	3.10	0.00	1.55	4.14	5.69
1	16168	3	6	1.17	0.00	2.57	0.86	0.86	4.29	5.14
1	16201	6	22	2.97	2.02	3.37	0.00	1.35	5.73	7.42
1	16216	4	29	1.67	8.40	3.60	0.00	4.80	12.00	17.40
1	16223	5	21	2.57	5.84	1.56	0.00	0.39	7.40	8.18
1	16234	4	25	1.93	2.59	5.69	0.00	4.66	8.28	12.93
1	16242	5	19	2.10	2.38	4.29	0.00	0.48	6.67	9.05
2	12004	3	19	1.07	0.00	13.13	0.00	0.00	14.06	17.81
2	12006	4	14	1.33	0.00	8.25	0.00	0.00	8.25	10.50
2	12016	4	30	1.30	0.00	14.62	0.77	0.00	20.77	23.08
2	12022	5	44	1.30	0.00	20.00	0.77	0.77	25.38	33.85
2	12031	4	17	1.43	0.00	9.77	0.70	0.00	10.47	11.86
2	12036	4	9	1.20	0.00	5.00	0.00	0.00	5.00	7.50
2	12038	4	26	1.40	0.00	15.00	0.00	0.00	15.00	18.57
2	12065	4	28	1.30	0.00	13.08	1.54	0.77	18.46	21.54
2	12066	5	15	1.70	0.00	4.12	1.18	0.00	5.88	8.82
2	13002	4	22	1.55	0.00	7.74	0.00	5.81	7.74	14.19
2	13003	4	21	1.50	0.00	10.67	0.00	3.33	10.67	14.00
2	13005	4	24	1.75	0.00	5.71	0.00	5.14	5.71	13.71
2	13006	4	10	1.70	0.00	3.53	0.00	2.35	3.53	5.88
2	13007	5	27	1.60	0.00	11.25	0.00	1.88	11.25	16.87
2	13008	4	26	1.60	0.00	12.50	0.00	2.50	12.50	16.25

Table 1 (cont'd)

DEP[a]	SITE	N	NF	EFFORT (h)	CPUE by Species[b]				TRock	Total
					CO	QB	YE	LC		
2	16073	4	7	1.70	0.00	1.76	1.76	0.00	4.12	4.12
2	16102	4	23	1.53	0.00	7.17	3.91	1.96	11.09	15.00
2	16113	4	15	1.40	0.00	5.71	5.00	0.00	10.72	10.72
2	16166	4	3	1.53	0.00	0.65	0.00	0.65	1.30	1.96
2	16168	3	6	1.00	0.00	2.00	2.00	0.00	5.00	6.00
2	16216	4	18	1.73	0.00	6.92	2.31	0.00	9.81	10.38
2	16223	4	8	2.00	0.00	0.50	1.00	2.00	1.50	4.00
2	16234	4	4	1.93	0.00	1.55	0.00	0.52	1.55	2.07
2	16242	4	2	1.70	0.00	0.59	0.00	0.00	0.59	1.18
3	12006	3	6	0.87	0.00	1.15	0.00	0.00	1.15	6.92
3	12016	4	16	1.07	0.00	9.38	0.00	0.00	12.19	15.00
3	12022	5	13	1.33	0.00	5.25	0.00	0.00	6.00	9.75
3	12031	4	6	1.20	0.00	1.67	0.00	0.83	1.67	5.00
3	12038	5	26	1.37	0.00	12.44	2.20	0.00	16.83	19.03
3	12065	4	17	1.40	0.00	10.00	0.00	0.00	10.71	12.14
3	12066	1	0	0.30	0.00	0.00	0.00	0.00	0.00	0.00
3	13003	4	17	1.50	0.00	8.67	1.33	1.33	10.00	11.33
3	13008	3	16	1.30	0.00	10.00	0.00	0.00	10.00	12.31
3	16073	4	13	1.60	0.00	3.13	0.63	0.00	4.38	8.12
3	16102	4	12	1.63	0.00	3.67	3.06	0.00	6.73	7.35
3	16113	4	12	1.33	0.00	5.25	1.50	0.00	7.50	9.00
3	16166	4	1	1.33	0.00	0.00	0.00	0.00	0.00	0.75
3	16216	4	11	1.73	0.00	4.62	1.73	0.00	6.35	6.35
3	16223	4	8	1.53	0.00	1.96	1.30	0.65	3.91	5.22
3	16234	4	10	1.73	0.00	2.31	1.15	0.58	5.19	5.77
3	16242	4	6	1.73	0.00	1.73	0.00	0.00	2.31	3.46

[a]Depth intervals: (1), 5-40 m; (2), 41-70 m; (3), 71-100 m.

[b]Species codes: CO, copper rockfish; QB, quillback rockfish; YE, yelloweye rockfish; LC, lingcod.

Table 2. Species composition of the catch, summarized by depth interval and site. N, number of records for that depth and site; NF, number of fish caught.

DEP[a]	SITE	N	Proportion by species[b]					NF
			CO	QB	YE	Trock	LC	
1	12004	4	0.200	0.150	-	0.400	-	20
1	12006	4	-	0.650	-	0.775	0.100	40
1	12016	4	0.043	0.447	-	0.809	0.085	47
1	12022	5	-	0.526	0.026	0.789	-	38
1	12031	4	-	0.600	-	0.600	0.133	15
1	12036	4	0.071	0.286	-	0.357	-	14
1	12038	3	-	0.818	-	0.864	0.045	22
1	12042	4	0.167	0.167	-	0.333	0.167	6
1	12065	4	0.040	0.360	-	0.820	0.040	50
1	12066	5	0.176	0.471	-	0.824	0.059	17
1	13002	4	0.500	0.391	-	0.891	0.087	46
1	13003	5	0.371	0.429	-	0.800	0.200	35
1	13005	4	0.128	0.596	-	0.723	0.128	47
1	13006	3	0.368	0.368	-	0.737	0.184	38
1	13007	4	0.100	0.700	-	0.800	0.150	20
1	13008	4	0.452	0.214	-	0.667	0.214	42
1	16073	4	0.077	0.731	0.077	0.885	0.115	26
1	16102	4	0.300	0.500	0.033	0.833	0.167	30
1	16113	4	0.357	0.036	-	0.393	0.357	28
1	16166	4	0.182	0.545	-	0.727	0.273	11
1	16168	3	-	0.500	0.167	0.833	0.167	6
1	16201	6	0.273	0.455	-	0.773	0.182	22
1	16216	4	0.483	0.207	-	0.690	0.276	29
1	16223	5	0.714	0.190	-	0.905	0.048	21
1	16234	4	0.200	0.440	-	0.640	0.360	25
1	16242	5	0.263	0.474	-	0.737	0.053	19
2	12004	3	-	0.737	-	0.789	-	19
2	12006	4	-	0.786	-	0.786	-	14
2	12016	4	-	0.633	0.033	0.900	-	30
2	12022	5	-	0.591	0.023	0.750	0.023	44
2	12031	4	-	0.824	0.059	0.882	-	17
2	12036	4	-	0.667	-	0.667	-	9
2	12038	4	-	0.808	-	0.808	-	26
2	12065	4	-	0.607	0.071	0.857	0.036	28
2	12066	5	-	0.467	0.133	0.667	-	15
2	13002	4	-	0.545	-	0.545	0.409	22
2	13003	4	-	0.762	-	0.762	0.238	21
2	13005	4	-	0.417	-	0.417	0.375	24
2	13006	4	-	0.600	-	0.600	0.400	10
2	13007	5	-	0.667	-	0.667	0.111	27
2	13008	4	-	0.769	-	0.769	0.154	26

Table 2 (cont'd)

DEP[a]	SITE	N	Proportion by species[b]					NF
			CO	QB	YE	Trock	LC	
2	16073	4	-	0.429	0.429	1.000	-	7
2	16102	4	-	0.478	0.261	0.739	0.130	23
2	16113	4	-	0.533	0.467	1.000	-	15
2	16166	4	-	0.333	-	0.667	0.333	3
2	16168	3	-	0.333	0.333	0.833	-	6
2	16216	4	-	0.667	0.222	0.944	-	18
2	16223	4	-	0.125	0.250	0.375	0.500	8
2	16234	4	-	0.750	-	0.750	0.250	4
2	16242	4	-	0.500	-	0.500	-	2
3	12006	3	-	0.167	-	0.167	-	6
3	12016	4	-	0.625	-	0.813	-	16
3	12022	5	-	0.538	-	0.615	-	13
3	12031	4	-	0.333	-	0.333	0.167	6
3	12038	5	-	0.654	0.115	0.885	-	26
3	12065	4	-	0.824	-	0.882	-	17
3	13003	4	-	0.765	0.118	0.882	0.118	17
3	13008	3	-	0.813	-	0.813	-	16
3	16073	4	-	0.385	0.077	0.538	-	13
3	16102	4	-	0.500	0.417	0.917	-	12
3	16113	4	-	0.583	0.167	0.833	-	12
3	16166	4	-	-	-	-	-	1
3	16216	4	-	0.727	0.273	1.000	-	11
3	16223	4	-	0.375	0.250	0.750	0.125	8
3	16234	4	-	0.400	0.200	0.900	0.100	10
3	16242	4	-	0.500	-	0.667	-	6

[a]Depth intervals: (1), 5-40 m; (2), 41-70 m; (3), 71-100 m.

[b]Species codes: CO, copper rockfish; QB, quillback rockfish; YE, yelloweye rockfish; Trock, total rockfish; LC, lingcod.

Table 3. The effect of depth on species composition for each statistical area. Species with an expected frequency of less than 5 are excluded from the analysis.

a) MSA 12

Depth	Species composition[a] (%)				Total
	DF	YT	QB	LC	
5- 40 m	2.9	18.5	62.5	16.1	205
41- 70 m	12.2	8.9	75.0	3.9	180
71-100 m	17.8	9.6	69.9	2.7	73
Total	41	61	314	42	458

χ^2=46.2, df=6, p<0.001

b) MSA 13

Depth	Species composition[a] (%)			Total
	CO	QB	LC	
5- 40 m	36.5	46.4	17.1	211
41- 70 m	-	70.0	29.3	116
71-100 m	-	92.9	7.1	28
Total	77	206	72	355

χ^2=74.6, df=4, p<0.001

c) MSA 16

Depth	Species composition[a] (%)				Total
	CO	QB	YE	LC	
5- 40 m	33.8	41.8	2.0	22.4	201
41- 70 m	-	56.0	32.0	12.0	75
71-100 m	-	67.9	28.3	3.8	53
Total	68	162	43	56	329

χ^2=109, df=6, p<0.001

[a]Species codes: DF spiny dogfish; CO copper rockfish; YT yellowtail rockfish; QB quillback rockfish; YE yelloweye rockfish; LC lingcod.

Table 4. Species composition over 5-40 m in MSA 16 in 1984, 1985 and 1986. Species with an expected frequency of less than 5 are excluded from the analysis.

Year	Species composition[a] (%)				Total
	DF	CO	QB	LC	
1984[b]	7.9	38.1	15.1	38.9	139
1985[c]	22.3	30.0	26.9	20.8	130
1986	0.5	36.3	46.2	17.0	212
Total	41	169	154	117	481

χ^2=90.8, df=6, p<0.001

[a]Species codes: DF spiny dogfish; CO copper rockfish; QB quillback rockfish; LC lingcod.

[b]From Richards et al. (1985a).

[c]From Richards and Cass (1985b).

Table 5. Species composition of the sport fishery in MSA 12 and 16.

Species Code[a]	% Comp. MSA 12	% Comp. MSA 16
UNK	2.8	-
CO	3.7	36.5
DU	5.6	-
YT	25.9	-
QB	20.4	20.3
BL	8.3	-
TI	-	1.3
BO	4.6	-
YE	16.7	1.4
KG	3.7	5.4
LC	8.3	35.1
Total	108	74

[a]See Appendix 1 for species names.

Table 6. Mean lengths (cm) and weights (g) with sample sizes and standard errors for each sex of major species caught in MSA 12, 13 and 16.

Species	Males						Females					
	N	len	SE	N	wgt	SE	N	len	SE	N	wgt	SE
MSA 12												
copper	7	28.2	1.0	7	409	56	6	29.2	1.6	6	413	66
yellowtail	44	30.1	0.4	44	421	18	14	31.1	1.0	14	488	65
quillback	160	33.2	0.4	161	722	25	141	33.9	0.5	141	773	31
black	11	45.5	1.0	11	1621	113	6	46.0	0.6	6	1562	38
yelloweye	6	60.4	2.1	6	3931	400	5	64.7	3.4	5	4961	847
kelp green.	26	36.6	0.6				12	39.7	1.0			
lingcod	13	57.4	1.7	13	1795	164	2	45.2	14.7	2	1125	885
MSA 13												
copper	34	29.0	0.6	34	427	26	35	30.7	0.7	35	526	36
quillback	111	29.1	0.5	111	516	25	94	27.9	0.6	94	472	30
kelp green.	14	36.4	0.9	6	650	83	5	38.9	1.9	4	785	128
lingcod	40	45.3	1.3	38	974	88	28	47.3	1.9	27	1108	140
MSA 16												
copper	37	26.6	0.4	37	324	15	29	26.6	0.9	29	365	45
greenstriped	2	24.4	0.1	2	200	0	7	26.0	0.7	7	249	24
quillback	100	30.1	0.5	100	548	28	57	29.8	0.7	57	522	34
yelloweye	20	36.9	2.4	20	1138	269	23	37.7	1.6	23	1001	136
lingcod	23	41.6	1.4	23	683	73	31	45.5	1.6	31	896	91

Table 7. Mean lengths (cm) and weights (g) with sample sizes and standard errors for quillback rockfish of each sex for each depth interval in each statistical area.

MSA	DEP[a]	Males						Females					
		N	len	SE	N	wgt	SE	N	len	SE	N	wgt	SE
12	1	61	31.3	0.6	62	594	30	62	31.3	0.7	62	622	42
12	2	71	33.3	0.6	71	717	36	57	35.0	0.7	57	824	46
12	3	28	37.1	0.9	28	1016	68	22	38.3	0.9	22	1066	70
13	1	51	26.6	0.5	51	391	21	47	26.7	0.7	47	395	32
13	2	45	30.1	0.7	45	559	38	36	28.8	1.0	36	531	56
13	3	15	34.3	1.4	15	813	85	11	30.7	1.8	11	607	103
16	1	52	27.7	0.6	52	416	24	30	27.2	0.8	30	386	35
16	2	29	32.0	1.0	29	626	48	13	31.0	1.3	13	553	62
16	3	19	33.7	1.2	19	792	84	14	34.2	0.9	14	783	50

[a]Depth intervals: (1), 5-40 m; (2) 41-70 m; (3) 71-100 m.

Table 8. Mean lengths (cm) with sample sizes and standard errors for species landed by the sport fishery in MSA 12 and 16. Species are included in the table if at least five fish were landed.

MSA	Species	N	len	SE
12	Dusky	6	36.7	3.2
12	Yellowtail	24	31.5	1.0
12	Quillback	19	39.0	1.1
12	Black	8	37.2	2.2
12	Yelloweye	14	62.8	2.0
12	Lingcod	5	81.3	8.8
16	Copper	27	30.9	0.8
16	Quillback	15	36.5	1.4
16	Lingcod	25	55.5	1.8

Table 9. Parameters of the weight-length (kg-cm) relationship ($W=aL^b$) by species, including r^2 and root mean square error. Parameters were calculated from the linear regression $\ln(W) = \ln(a) + b\ln(L)$.

Species	MSA	N	a	b	r^2	M.S.E.
Copper	-	148	2.11E-5	2.94	0.963	0.0809
Yellowtail	-	59	1.49E-5	3.01	0.936	0.0781
Quillback	12	301	2.00E-5	2.97	0.971	0.0922
Quillback	13	205	2.02E-5	2.99	0.963	0.1054
Quillback	16	157	1.93E-5	2.98	0.962	0.1055
Yelloweye	-	56	1.40E-5	3.06	0.995	0.0693
Lingcod	-	134	3.09E-5	3.27	0.989	0.0713

Fig. 1a.

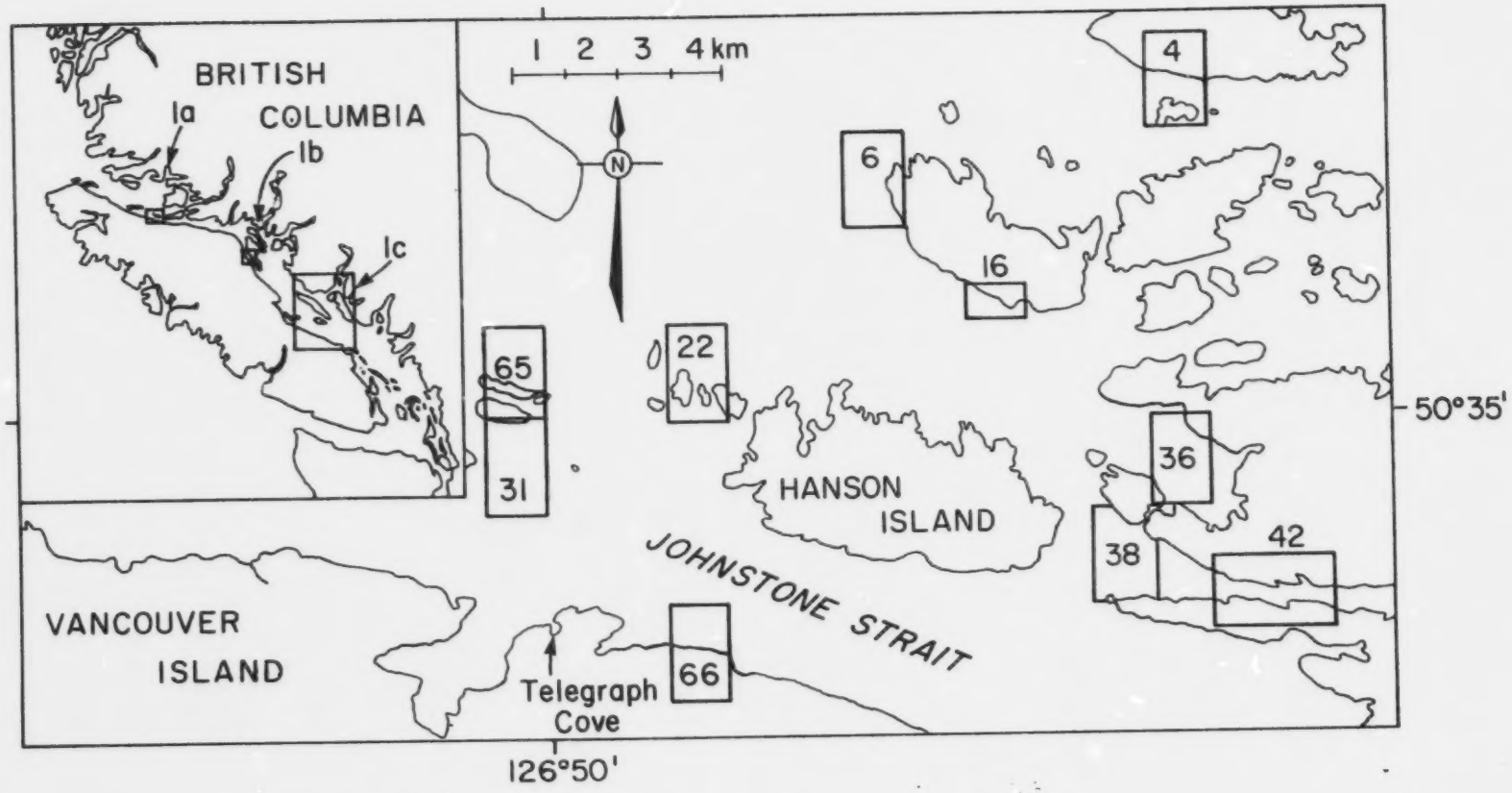

Fig. 1. The location of study sites in MSA 12 (a), MSA 13 (b), and MSA 16 (c). The inset in (a) shows the relationship of the three areas to Vancouver Island and mainland British Columbia.

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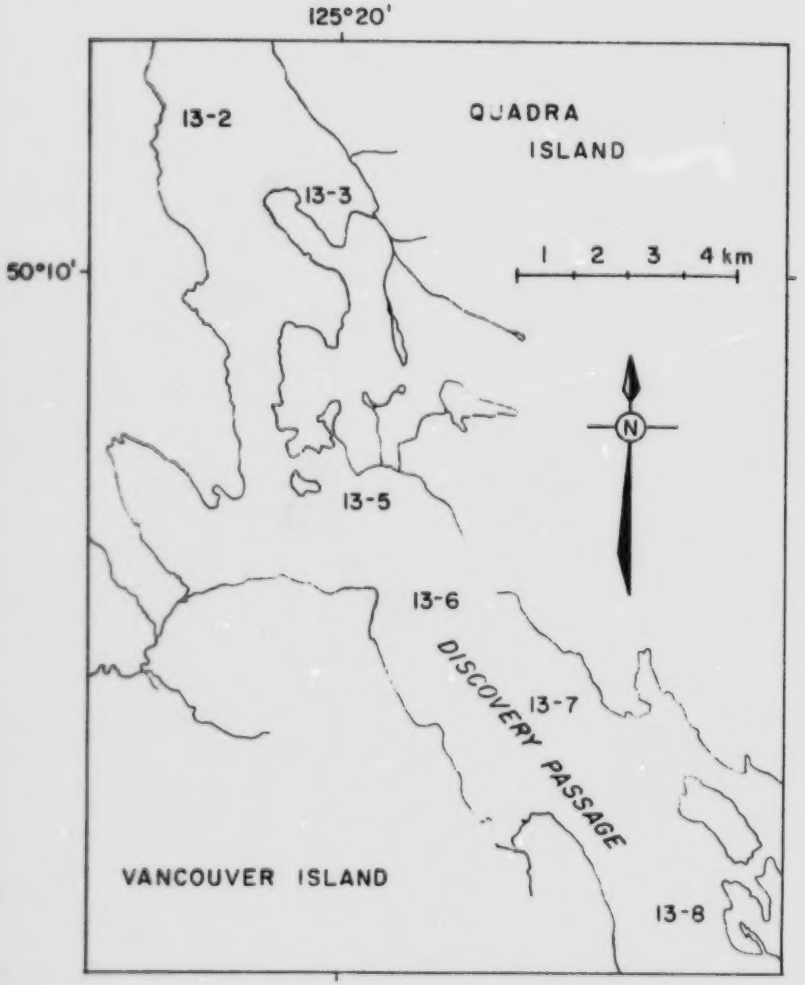
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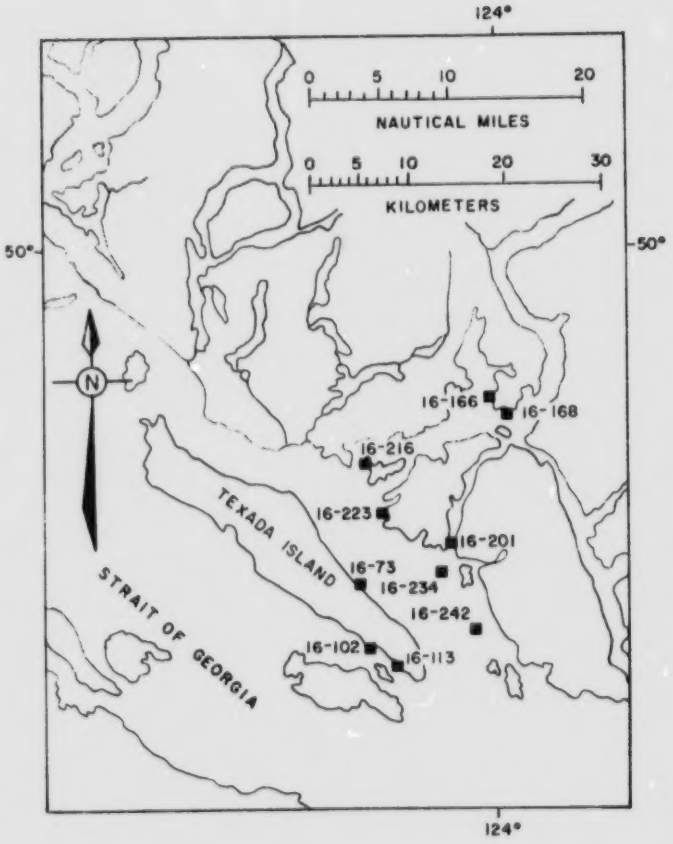
50°10'
13-2
QUADRA
ISLAND
13-3
1 2 3 4 km
N
13-5
13-6
DISCOVERY PASSAGE
13-7
VANCOUVER ISLAND
13-8

Fig. 1b.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0 5 10 20
NAUTICAL MILES
0 5 10 20 30
KILOMETERS
50°
50°
N
16-166
16-168
16-216
16-223
16-201
TEXADA ISLAND
16-73
16-234
16-242
STRAIT OF GEORGIA
16-102
16-113
124°

Fig. 1c.

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Fig. 2. Length-frequency histograms for copper rockfish (a), yelloweye rockfish (b), kelp greenling (c), and lingcod (d). Histogram bars represent the frequency according to statistical area. Length (cm) is the midpoint of the size interval.

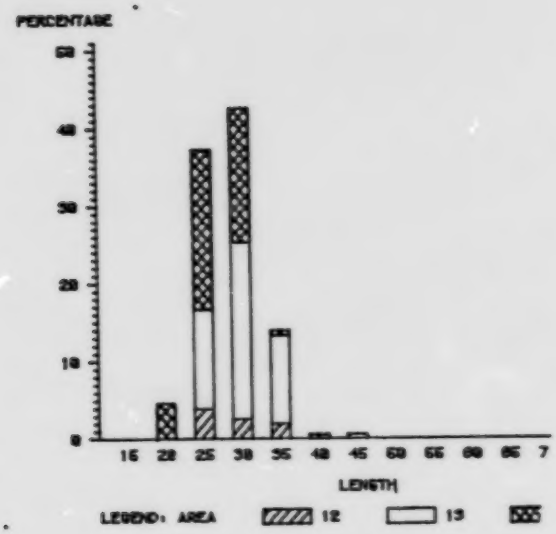

Fig 2a.

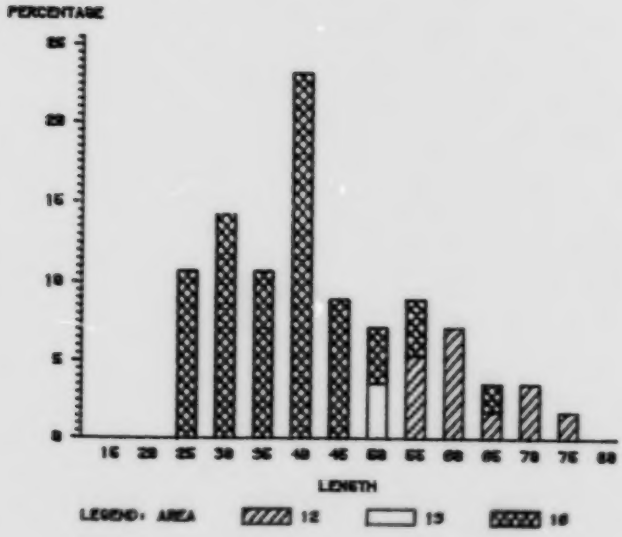

Fig. 2b.

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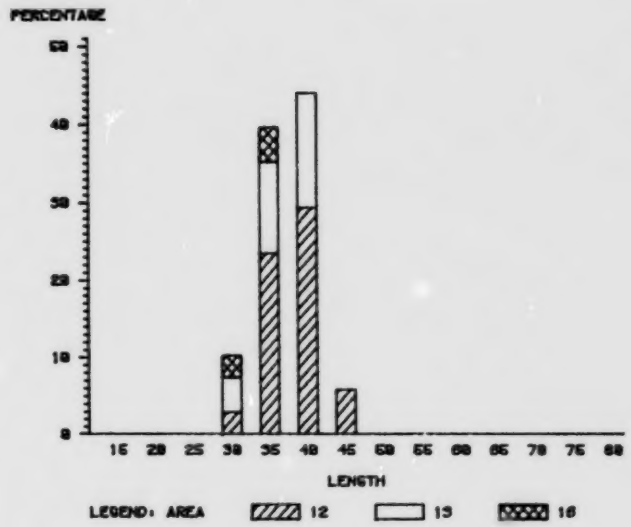
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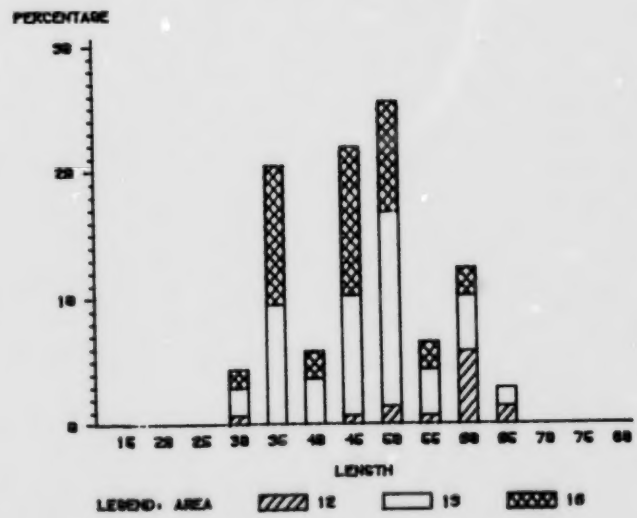
20
30
40
50
15 20 25 30 35 40 45 50 55 60 65 70 75 80
LENGTH
LEGEND: AREA 12 13 16

Fig. 2c.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10
20
30
15 20 25 30 35 40 45 50 55 60 65 70 75 80
LENGTH
LEGEND: AREA 12 13 16

Fig. 2d.

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Fig. 3. Length-frequency histogram for male and female yellowtail rockfish in MSA 12. Length (cm) is the midpoint of the size interval. Sex: (1), male; (2), female.

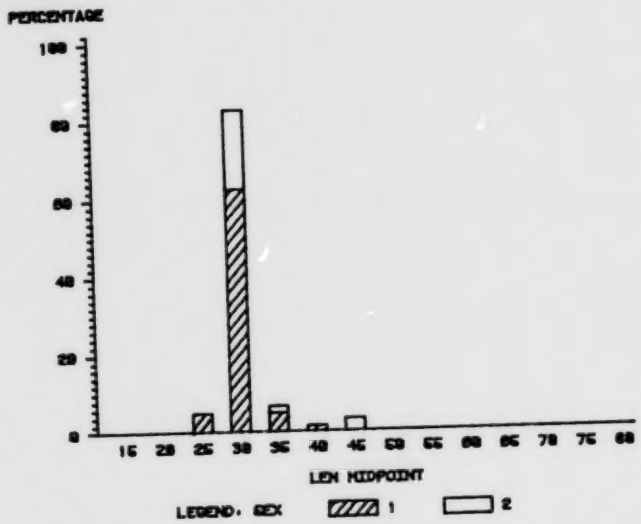

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Fig. 4. Length-frequency histogram for quillback rockfish in MSA 12 (a), MSA 13 (b) and MSA 16 (c). Histogram bars represent the frequency according to depth in each statistical area. Length (cm) is the midpoint of the size interval. Depth: (1) 5-40 m; (2) 41-70 m; (3) 71-100 m.

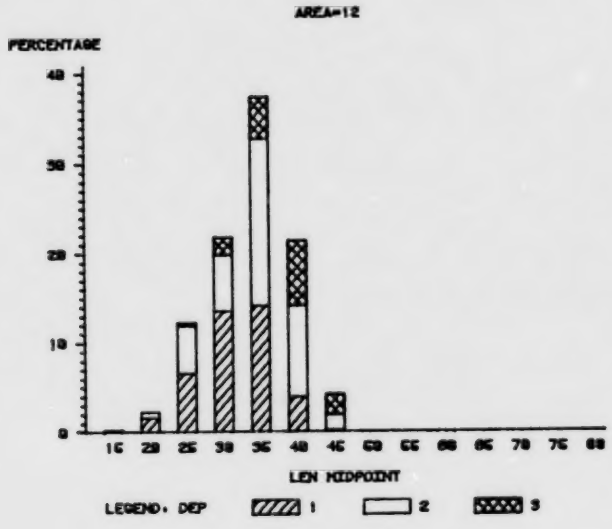

Fig. 4a.

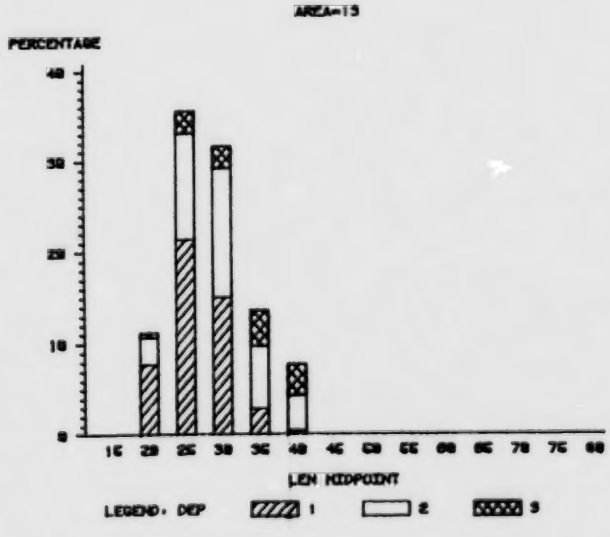

Fig. 4b.

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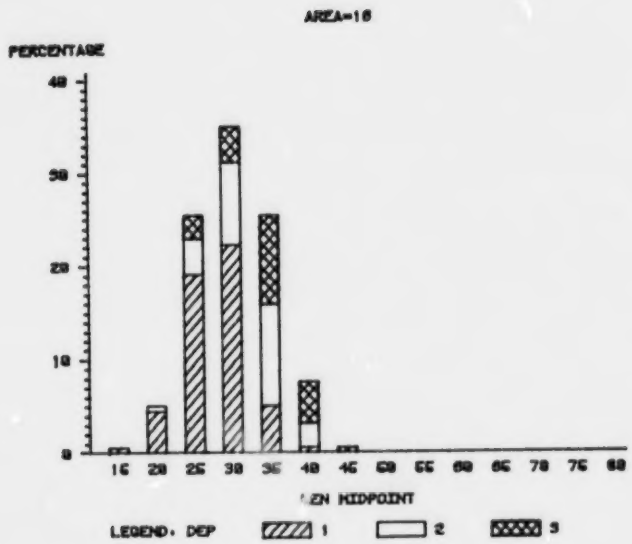
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40
30
20
10
0
10 20 25 30 35 40 45 50 55 60 65 70 75 80
LEN MIDPOINT
LEGEND. DEP 1 2 3

Fig. 4c.

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Fig. 5. Weight (g) - length (cm) relationships for copper rockfish (a), yellowtail rockfish (b), MSA 12 quillback rockfish (c), yelloweye rockfish (d), and lingcod (e).

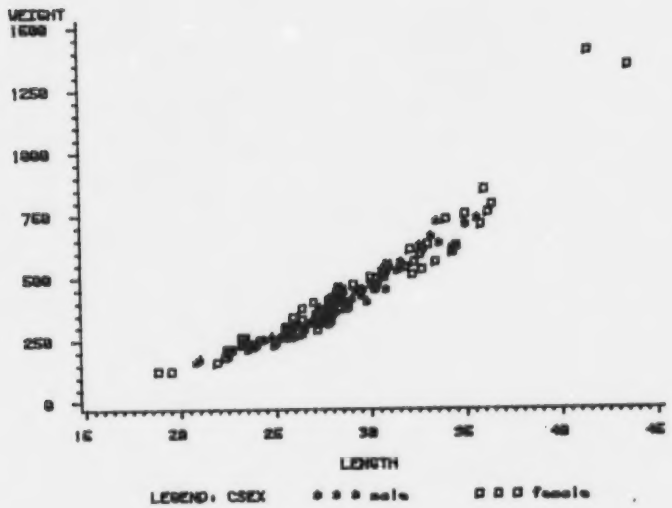

Fig. 5a.

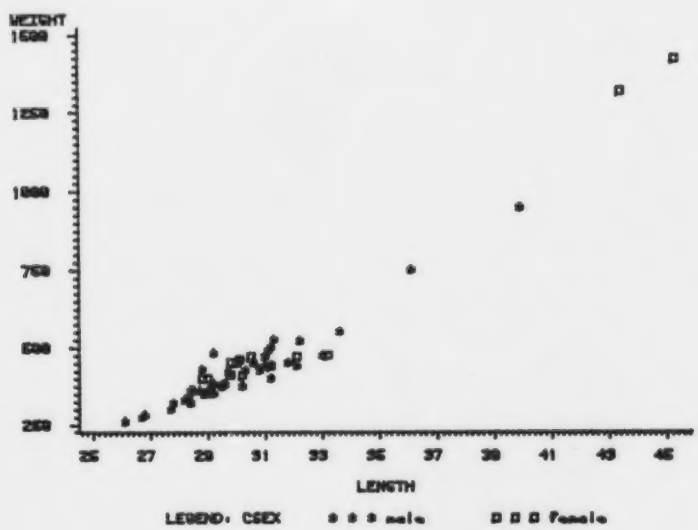

Fig. 5b.

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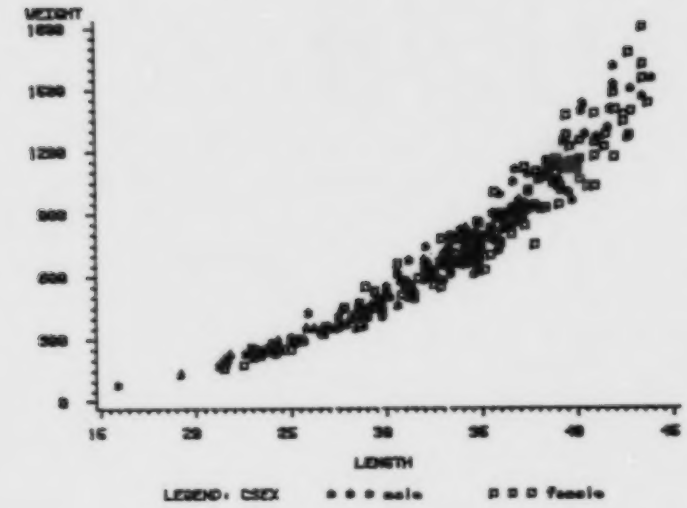
WEIGHT
LENGTH
LEGEND: SEX
male
female

Fig. 5c.

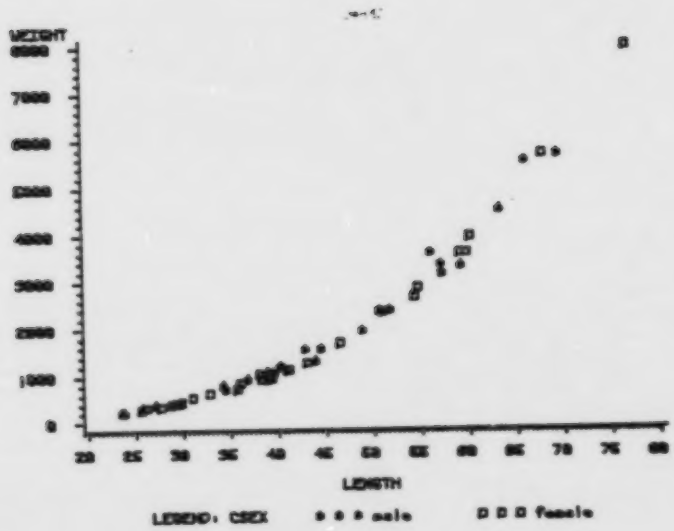
WEIGHT
LENGTH
LEGEND: SEX
male
female

Fig. 5d.

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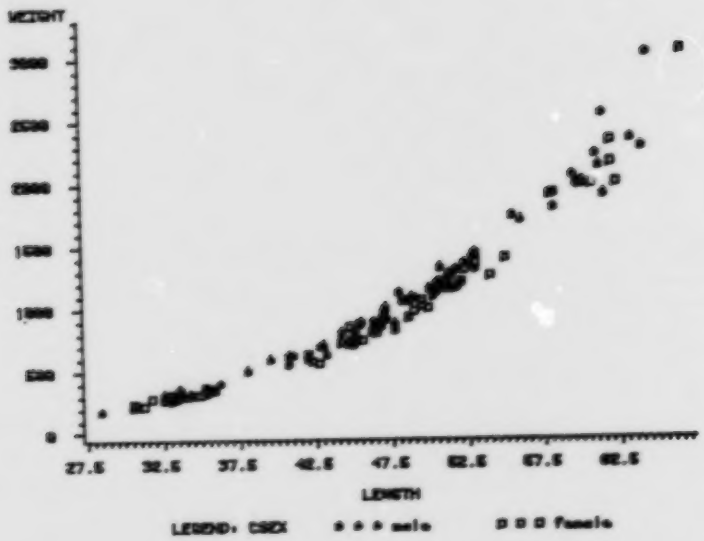
WEIGHT
0
27.5
32.5
37.5
42.5
47.5
52.5
57.5
62.5
LENGTH
LEGEND: SEX
male
female

Fig. 5e.

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Fig. 6. Temperature (°C) and salinity (‰) profiles for the MSA 12 sites.

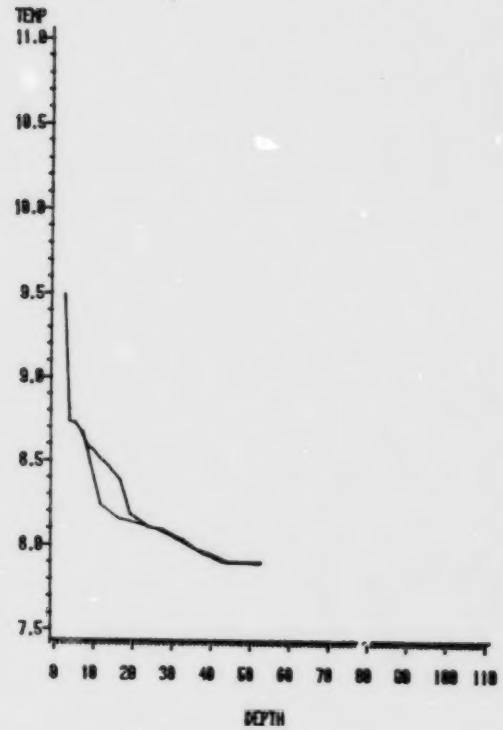

Fig. 6a.
Site 12-4, 21/6/86

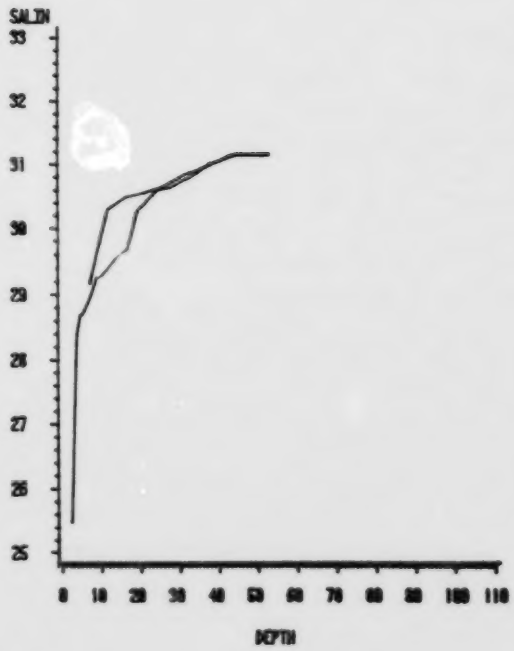

Fig. 6b.
Site 12-4, 21/6/86

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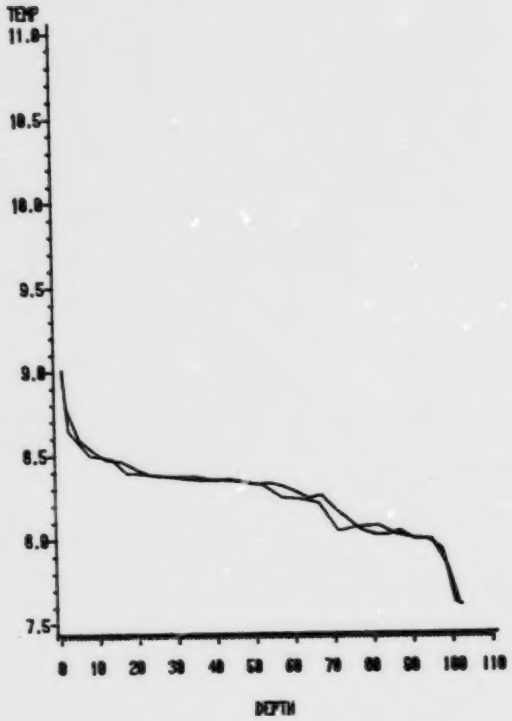

Fig. 6c.
Site 12-6, 20/6/86

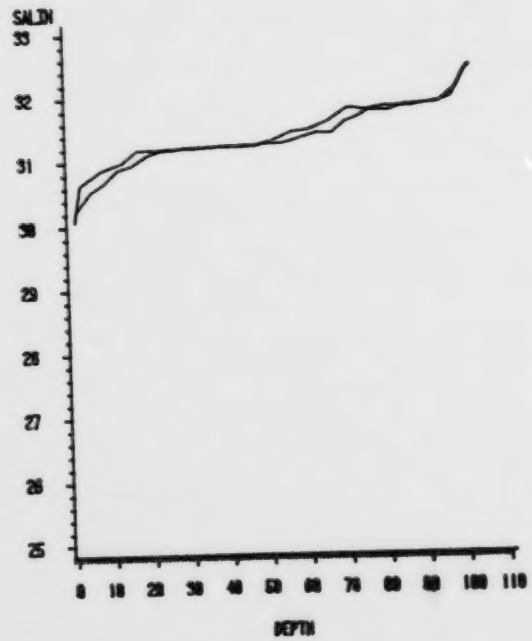

Fig. 6d.
Site 12-6, 20/6/86

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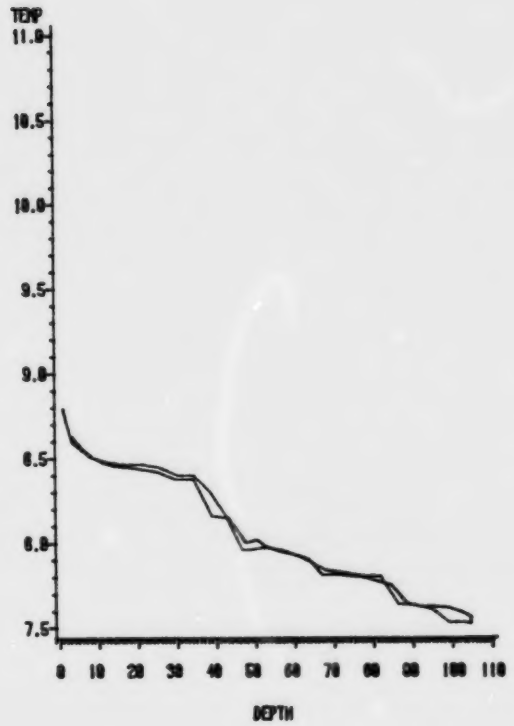

Fig. 6f
Site 12-16, 18/6/86

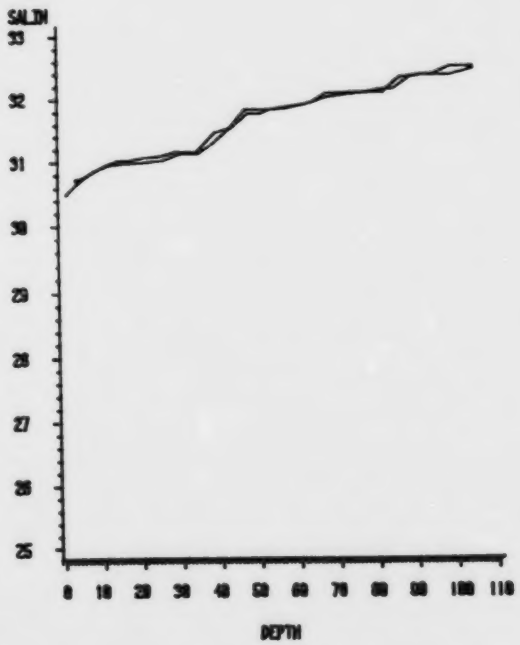

Fig. 7f.
Site 12-6, 18/6/86

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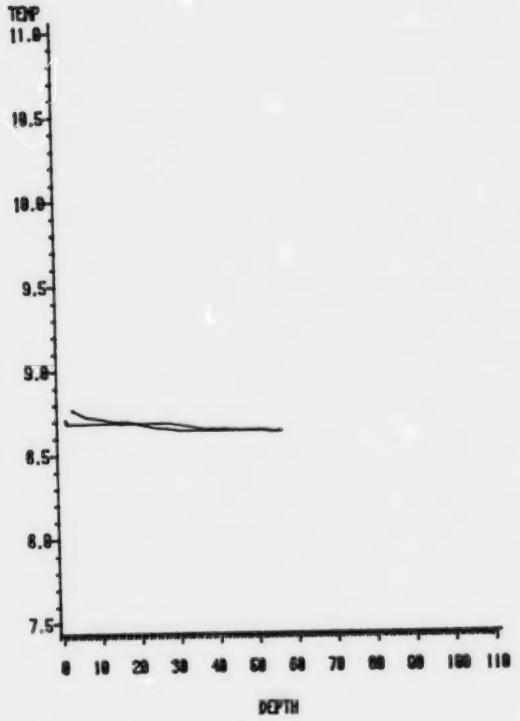

Fig. 6g.
Site 12-22, 17/6/86

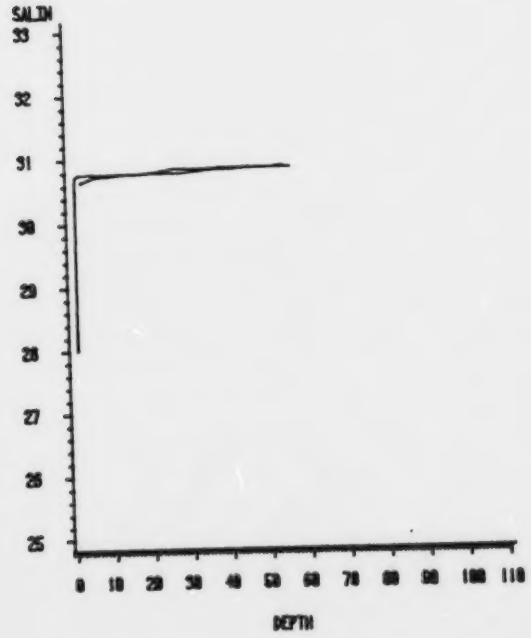

Fig. 6h.
Site 12-22, 17/6/86

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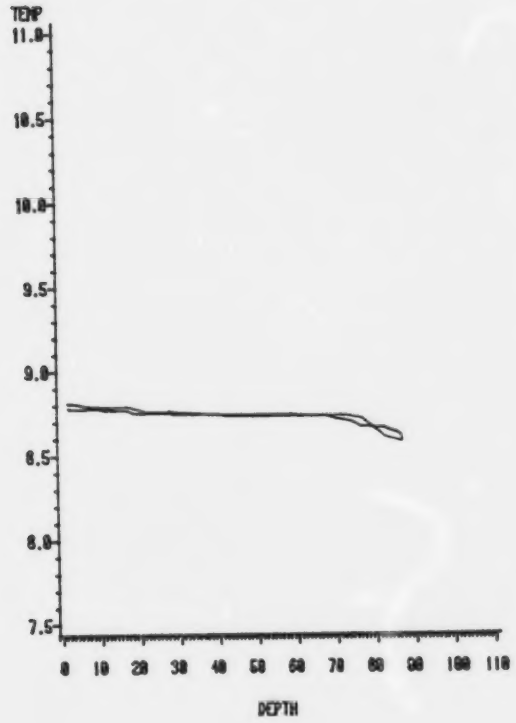

Fig. 6i.
Site 12-31, 23/6/86

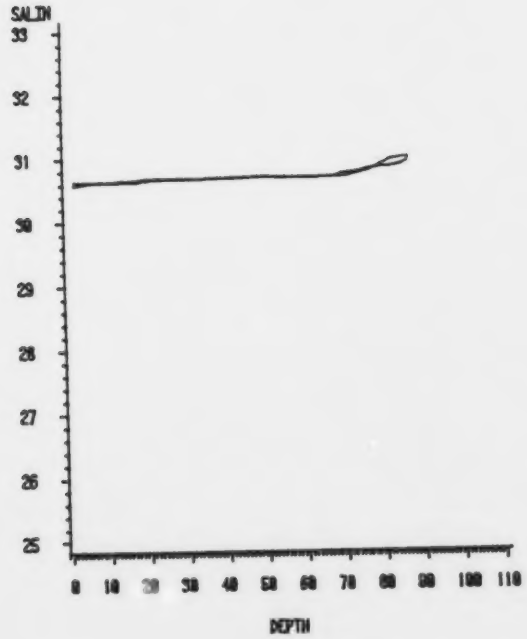

Fig. 6j.
Site 12-31, 23/6/86

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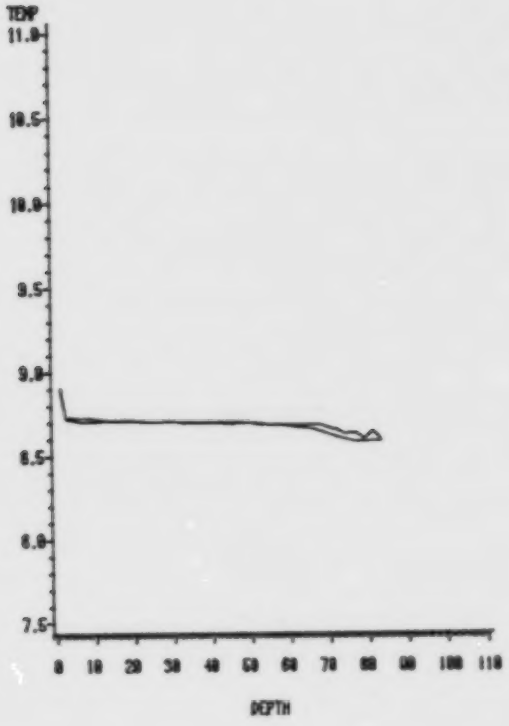

Fig. 6k
Site 12-38, 19/6/86

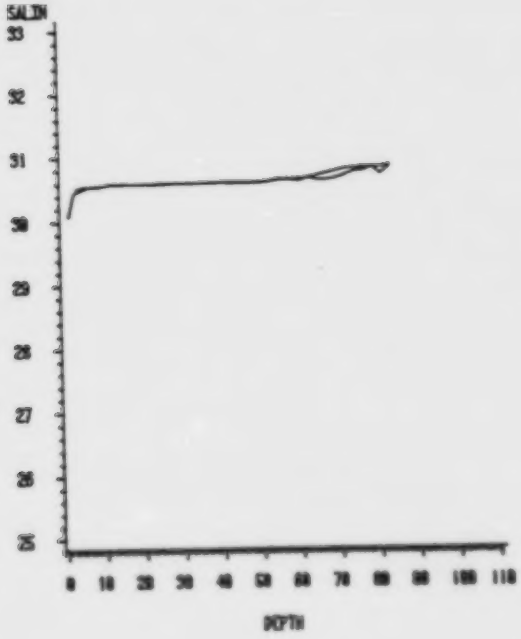

Fig. 61.
Site 12-38, 19/6/86

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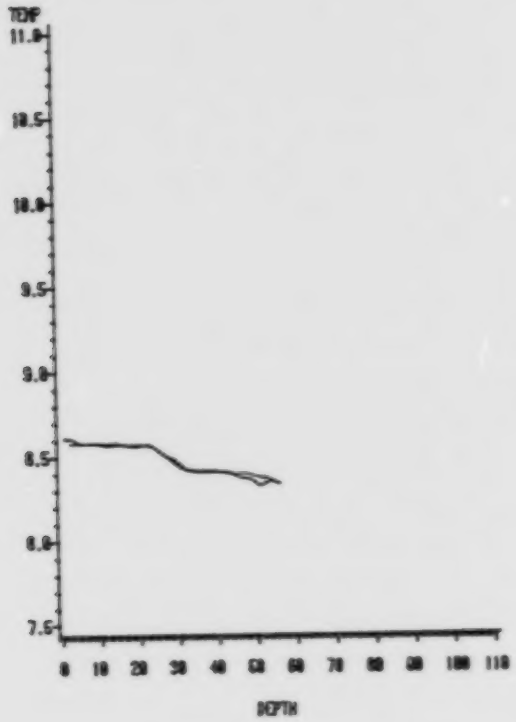

Fig. 6m.
Site 12-42, 22/6/86

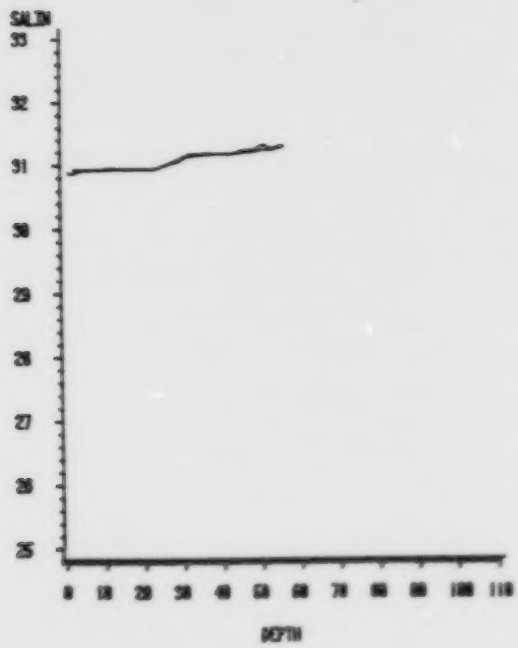

Fig. 6n.
Site 12-42, 22/6/86

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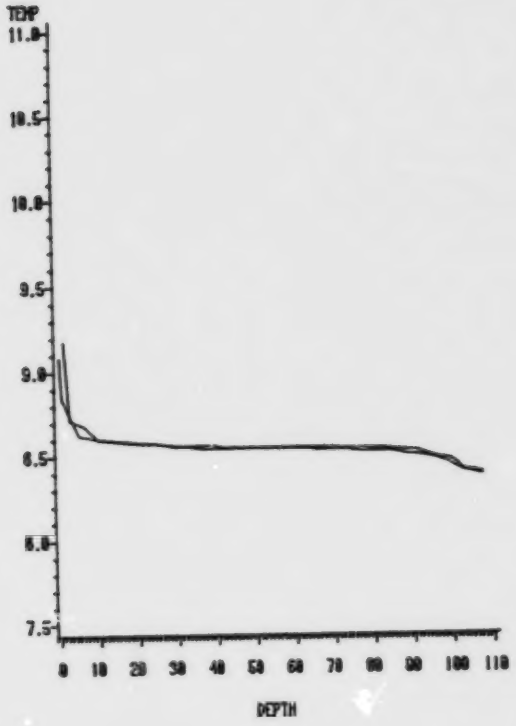

Fig. 6o.
Site 12-65, 24/6/86

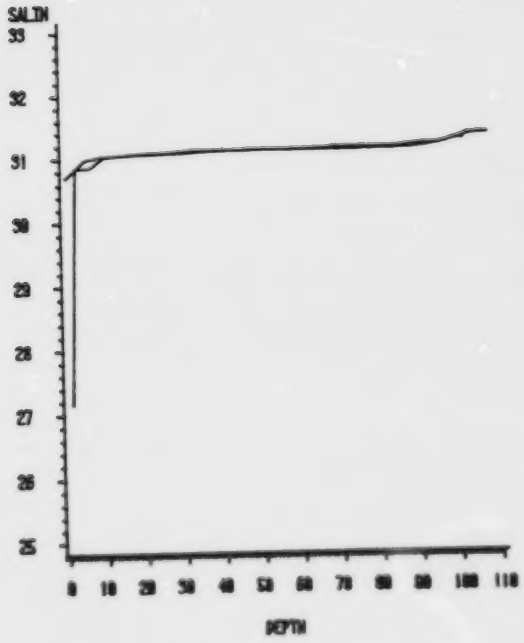

Fig. 6p.
Site 12-65, 24/6/86

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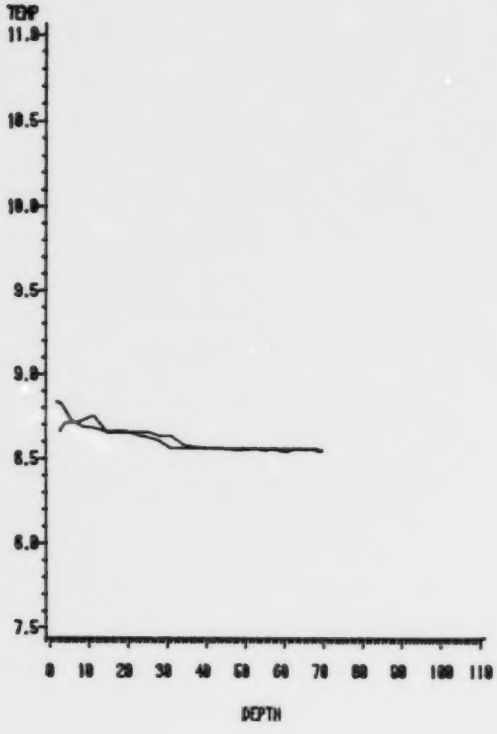

Fig. 6q.

Site 12-66, 25/6/86

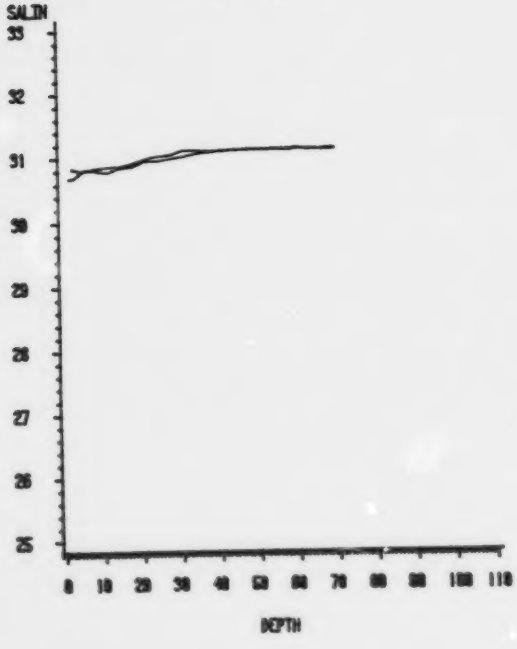

Fig. 6r.

Site 12-66, 25/6/86

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Fig. 7. Temperature (°C) and salinity (°/oo) profiles for the MSA 13 sites.

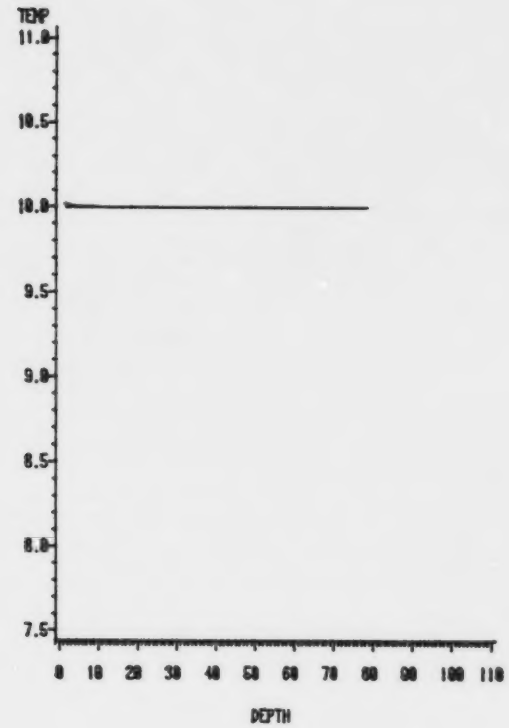

Fig. 7a.
Site 13-2, 28/7/86

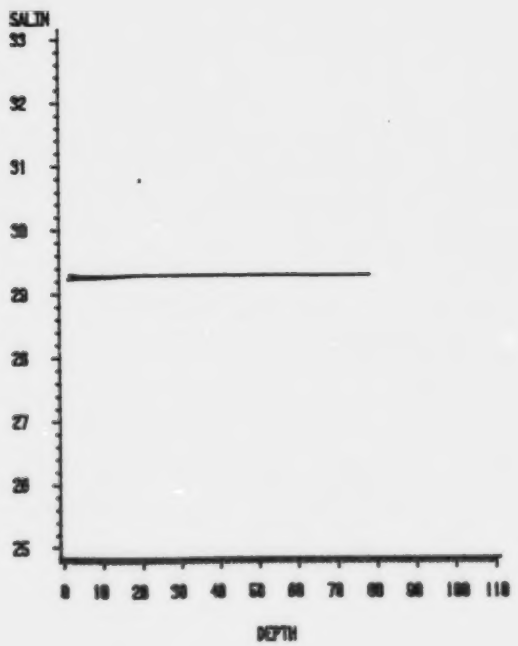

Fig. 7b.
Site 13-2, 28/7/86

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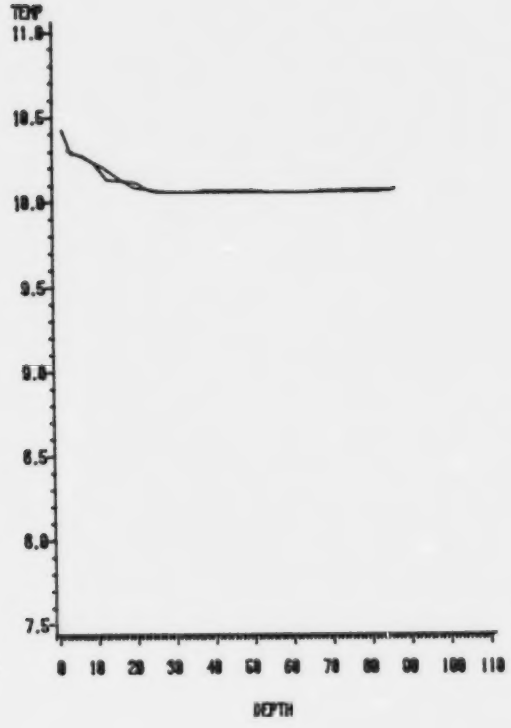

Fig. 7c.

Site 13-3, 29/7/86

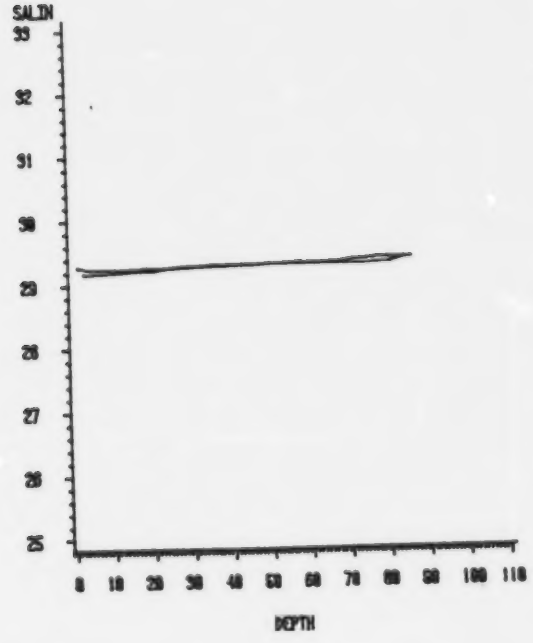

Fig. 7d.

Site 13-3, 29/7/86

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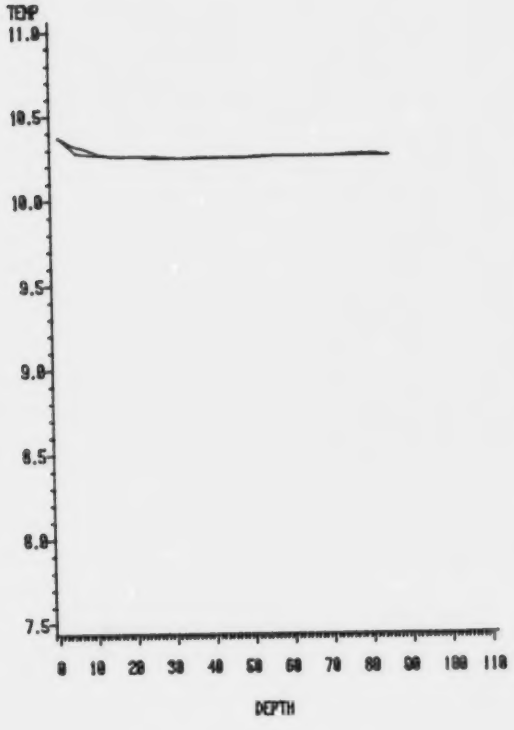

Fig. 7e.

Site 13-3, 30/7/86

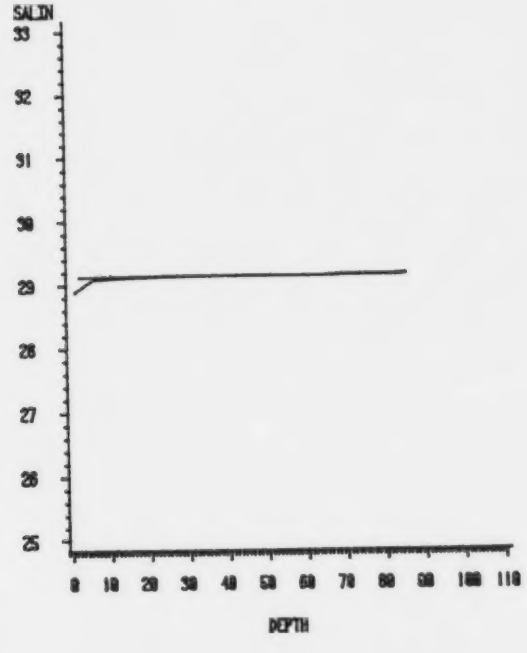

Fig. 7f.

Site 13-3, 30/7/86

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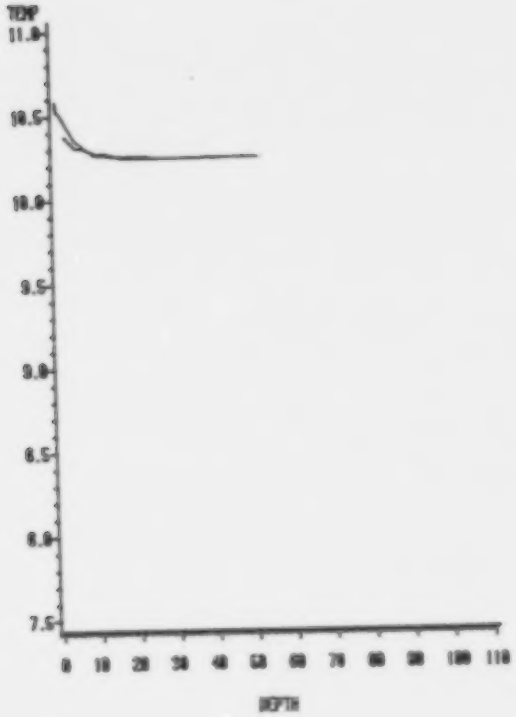

Fig. 7g.

Site 13-5, 30/7/86

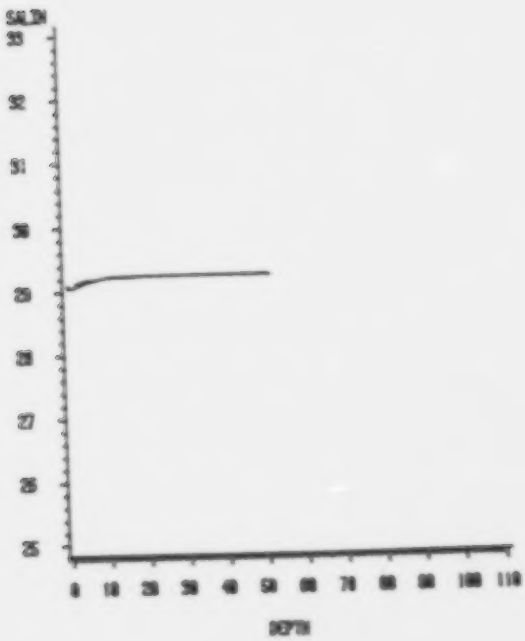

Fig. 7h.
Site 13-5, 30/7/86

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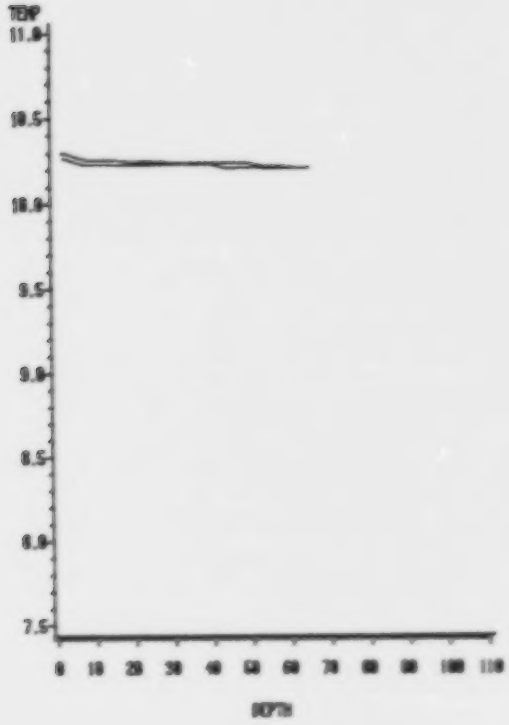

Fig. 7i.

Site 13-6, 30/7/86

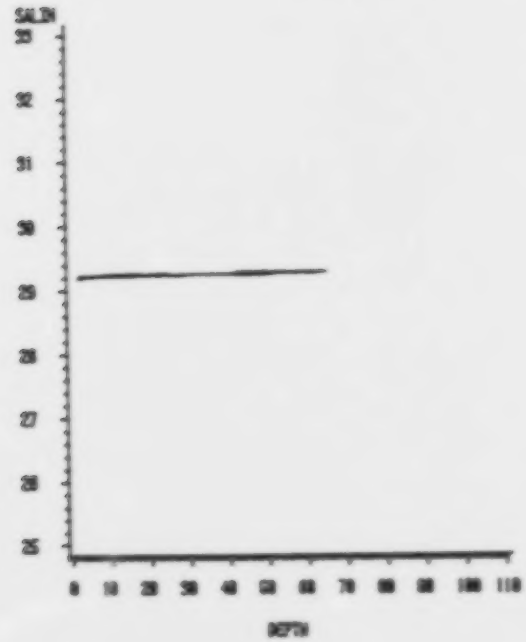

Fig. 7j.

Site 13-6, 30/7/86

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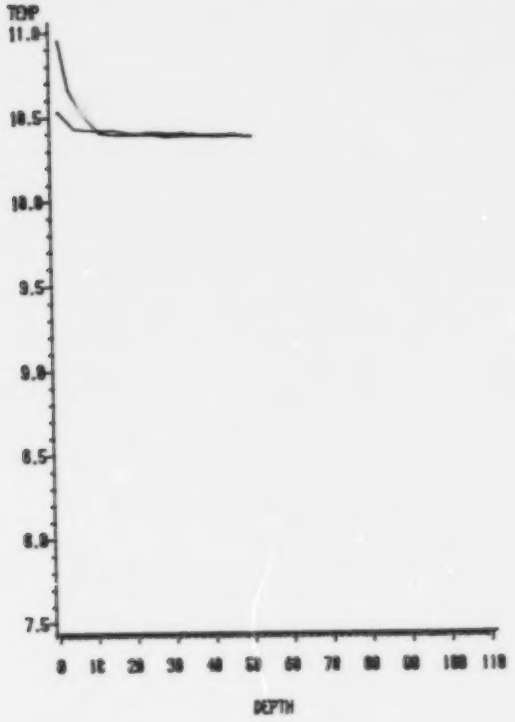

Fig. 7k.
Site 13-7, 31/7/86

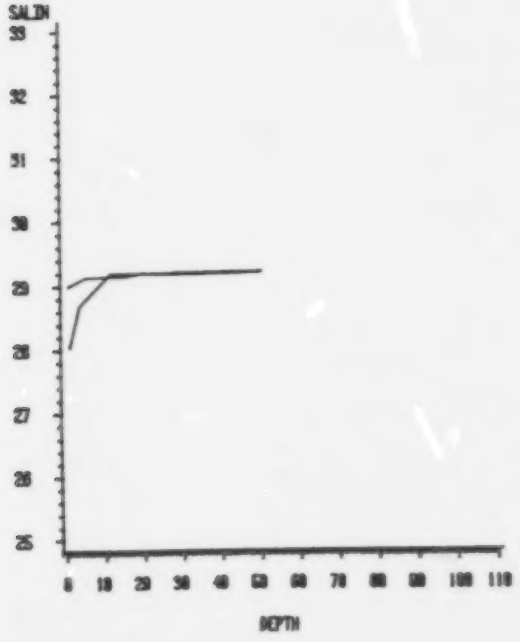

Fig. 71.
Site 13-7, 31/7/86

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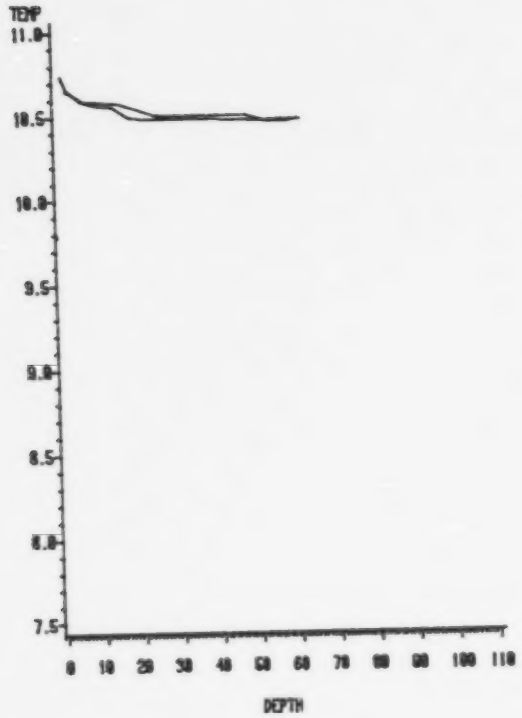

Fig. 7m.
Site 13-8, 31/7/86

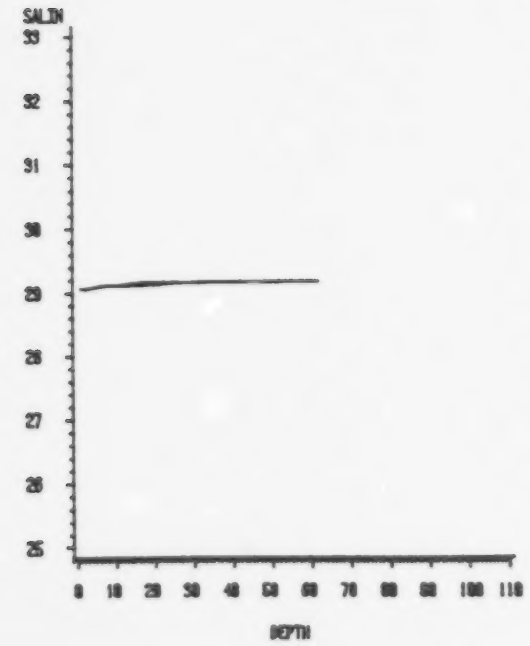

Fig. 7n.
Site 13-8, 31/7/86

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Appendix table 1. Common names, two-letter species codes and scientific names of fish species caught during the survey.

Common name	Code	Scientific name
Spiny dogfish	DF	Squalus acanthias
Ratfish	RF	Hydolagus colliei
Chinook salmon	CS	Oncorhynchus tshawytscha
Pacific cod	PC	Gadus macrocephalus
Pacific tomcod	PT	Microgadus proximus
Unknown rockfish	UNK	Sebastes sp.
Silvergrey rockfish	SG	S. brevispinus
Copper rockfish	CO	S. caurinus
Dusky rockfish	DU	S. ciliatus
Greenstriped rockfish	GS	S. elongatus
Yellowtail rockfish	YT	S. flavidus
Quillback rockfish	QB	S. maliger
Black rockfish	BL	S. melanops
Tiger rockfish	TI	S. nigrocinctus
Bocaccio	BO	S. paucispinis
Redstripe rockfish	RD	S. proriger
Yelloweye rockfish	YE	S. ruberrimus
Kelp greenling	KG	Hexagrammos decagrammus
Lingcod	LC	Ophiodon elongatus
Red Irish lord	RL	Hemilepidotus hemilepidotus
Great sculpin	GR	Myoxocephalus polyacanthocephalus
Cabezon	CB	Scorpaenichthys marmoratus
Pacific sanddab	PS	Citharichthys sordidus
Flathead sole	FS	Hippoglossoides elassodon
Rock sole	RS	Lepidopsetta bilineata

Appendix table 2. Descriptions of codes for weather conditions, sea state, surface current, motor on or off, and tide used in Appendix 3.

Code	Description
a) weather conditions	
1	bright
2	overcast
3	variable
4	rain
b) sea state	
1	calm
2	rippled
3	0.5 m chop
4	1.0 m chop
5	1.5 m chop
c) surface current	
1	nil
2	weak
3	moderate
4	strong
d) motor	
1	off - boat drifting
3	on to maintain position
e) tide	
hours from low slack on a scale of -5 (one hour after high slack) to 0 (low slack) to +6 (high slack)	

Appendix table 3. Summary of fishing conditions and species caught from each record. Columns are record number, date, site number, start time for each record, minimum depth, maximum depth, median depth, weather conditions (W), sea surface conditions (S), surface current (C), motor on or off (M), tide (TI), total fishing time (EFF), vessel, and the number of each species caught.

a) MSA 12

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	RF	CS	PC	PT	CO	DU	YT	QB	BL	RD	YE	KG	LC	RL	GR	FS	RS
18	860617	12-22	0715	9	38	27	4	1	2	1	+3	0.37	CAB	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0
19	860617	12-22	0801	41	70	55	4	1	2	1	+4	0.37	CAB	3	0	0	0	1	0	0	1	8	0	0	0	2	0	0	0	0	0
20	860617	12-22	0928	82	86	82	4	1	2	1	+6	0.40	CAB	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
21	860617	12-22	1030	10	27	12	4	1	1	1	-5	0.40	CAB	0	0	0	0	0	0	0	0	8	0	0	0	1	0	0	0	0	0
22	860617	12-22	1115	80	84	82	4	1	2	1	-4	0.37	CAB	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
23	860617	12-31	0723	86	99	92	2	1	2	1	+4	0.37	INF	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	860617	12-31	0810	46	70	49	2	1	3	1	+4	0.40	CAB	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
25	860617	12-31	0905	9	31	27	4	1	2	1	+5	0.37	INF	0	0	0	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0
26	860617	12-31	0950	44	70	55	2	1	2	1	+6	0.33	INF	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0
27	860617	12-31	1045	71	91	82	2	1	2	1	-5	0.33	INF	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	860617	12-31	1127	27	18	18	2	1	2	1	-4	0.37	INF	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0
29	860618	12-16	0720	41	68	55	2	1	2	1	+2	0.30	CAB	1	0	0	0	0	0	0	1	7	0	0	0	0	0	0	0	0	0
30	860618	12-16	0840	11	37	18	2	1	2	1	+4	0.40	CAB	0	0	1	1	0	0	0	2	6	0	0	0	0	2	0	0	0	0
31	860618	12-16	0945	71	93	82	2	1	2	1	+5	0.33	CAB	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	860618	12-16	1020	41	70	55	2	1	2	1	+5	0.33	CAB	0	0	0	0	0	0	0	3	5	0	0	0	0	0	0	0	0	0
33	860618	12-16	1130	15	38	18	2	1	2	1	+6	0.40	CAB	0	0	0	0	0	1	0	6	4	0	0	0	0	1	0	0	0	0
34	860618	12-16	1300	73	100	82	3	1	3	1	-4	0.33	CAB	1	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0
35	860618	12-42	0708	12	14	12	4	1	2	1	+2	0.37	INF	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
36	860618	12-36	0807	45	54	45	4	1	1	1	+3	0.37	INF	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	860618	12-36	0845	10	24	15	4	1	1	1	+4	0.33	INF	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	860618	12-36	0918	42	51	45	4	1	1	1	+4	0.17	INF	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	860618	12-36	0936	10	30	16	4	1	1	1	+4	0.37	INF	2	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
40	860618	12-42	1044	10	20	10	4	1	3	1	+6	0.33	INF	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0
41	860618	12-66	1230	41	70	55	3	2	3	3	-4	0.33	INF	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1
42	860619	12-38	0730	71	100	80	2	1	2	3	+1	0.27	CAB	0	0	0	0	0	0	0	2	1	0	0	1	0	0	0	0	0	0
43	860619	12-38	0839	55	64	58	2	2	2	3	+3	0.30	CAB	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
44	860619	12-38	0936	71	100	80	4	2	4	3	+3	0.13	CAB	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF	VES	SPECIES[b]																
				(m)	(m)	(m)						(h)		DF	RF	CS	PC	PT	CO	DU	YT	QB	BL	RD	YE	KG	LC	RL	GR	FS	RS
45	860619	12-38	1028	10	37	18	2	1	2	3	+3	0.37	CAB	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	0	0	0
46	860619	12-38	1134	41	70	58	2	2	3	3	+5	0.40	CAB	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
47	860619	12-38	1207	10	30	15	4	2	4	3	+6	0.37	CAB	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
48	860619	12- 4	0730	18	24	29	2	1	2	1	+1	0.40	INF	0	0	0	0	0	3	0	0	0	0	0	0	0	0	2	0	0	0
49	860619	12- 4	0830	42	50	45	2	1	3	1	+2	0.40	INF	1	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0
50	860619	12- 4	1000	10	25	18	2	1	3	1	+4	0.37	INF	0	0	0	0	0	1	0	1	0	0	0	0	4	0	1	1	0	0
51	860619	12- 4	1115	41	56	44	2	1	3	1	+5	0.33	INF	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
52	860619	12-22	1250	41	63	48	2	2	4	1	-5	0.07	INF	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
53	860620	12- 6	0700	15	40	22	3	1	2	1	00	0.33	CAB	0	0	0	0	0	0	0	0	9	2	0	0	1	0	0	0	0	0
54	860620	12- 6	0805	46	70	51	3	2	3	1	+1	0.33	CAB	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0
55	860620	12- 6	0905	71	86	81	1	1	2	1	+2	0.27	CAB	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
56	860620	12- 6	0945	48	70	51	3	2	2	1	+3	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
57	860620	12- 6	1040	15	40	22	3	1	2	1	+4	0.40	CAB	0	0	0	0	0	0	0	0	6	1	0	0	0	3	0	0	0	0
58	860620	12- 6	1200	71	82	81	3	1	2	1	+5	0.27	CAB	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
59	860620	12-65	0710	41	58	54	3	1	1	1	00	0.37	INF	0	0	0	0	0	0	0	1	3	0	0	0	0	1	0	0	0	0
60	860620	12-65	0803	71	92	80	1	1	1	1	+1	0.33	INF	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
61	860620	12-65	0900	71	78	74	3	1	1	1	+2	0.37	INF	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
62	860620	12-65	1000	10	26	12	3	1	2	1	+3	0.30	INF	0	0	0	0	0	2	0	2	4	6	0	0	4	0	0	0	0	0
63	840620	12-65	1125	42	65	54	1	1	3	1	+4	0.30	INF	0	0	0	0	0	0	0	0	6	1	0	0	1	0	0	0	0	0
64	860621	12- 4	0702	10	33	18	4	2	3	3	-1	0.33	CAB	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	1	0	0
65	860621	12- 4	0817	41	64	51	3	2	4	3	00	0.33	CAB	1	0	0	0	0	0	0	0	5	0	0	0	1	0	0	0	0	0
66	860621	12- 4	0919	10	22	18	4	2	3	3	+1	0.33	CAB	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
67	860621	12-22	1130	15	40	33	4	2	3	3	+4	0.27	CAB	2	0	0	0	0	0	0	5	4	0	0	0	1	0	0	0	0	0
68	860621	12-38	0730	22	70	44	4	1	4	1	00	0.37	INF	1	0	0	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0
69	860621	12-38	0930	71	82	76	4	1	2	1	+1	0.33	INF	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
70	860621	12-38	0930	71	82	76	4	1	2	1	+2	0.33	INF	0	0	0	0	0	0	0	0	7	0	0	0	1	0	0	0	0	0
71	860621	12-38	1030	10	40	26	4	1	2	1	+3	0.27	INF	0	0	0	0	0	0	0	1	9	0	0	0	1	0	0	0	0	0
72	860621	12-38	1200	41	60	48	4	3	4	1	+4	0.33	INF	0	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	RF	CS	PC	PT	CO	DU	YT	QB	BL	RD	YE	KG	LC	RL	GR	FS	RS
73[c]	860622	12-42	0735	11	11	11	4	3	4	1	-1	0.37	CAB	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
74[c]	860622	12-42	0820	11	12	11	4	3	4	1	00	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
75[c]	860622	12-36	0900	11	11	11	4	1	2	1	00	0.33	CAB	0	0	0	3	0	1	0	0	1	0	0	0	1	0	0	1	0	0
76[c]	860222	12-36	1000	46	55	46	2	1	2	1	+1	0.33	CAB	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0
77[c]	860622	12-36	1100	11	11	11	2	1	1	1	+3	0.37	CAB	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
78[c]	860622	12-36	1140	45	45	45	2	3	4	1	+3	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
79	860622	12- 6	0742	10	40	18	4	3	4	1	-1	0.33	INF	0	0	0	0	0	0	0	1	7	0	0	0	3	0	0	0	0	0
80	860622	12- 6	0853	41	60	48	2	3	3	1	00	0.33	INF	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0
81	860622	12- 6	0956	71	80	72	2	3	4	1	+1	0.33	INF	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
82	860622	12- 6	1100	41	60	46	2	2	3	1	+2	0.33	INF	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0
83	860622	12- 6	1144	10	18	12	2	2	3	1	+3	0.30	INF	0	0	0	0	0	0	0	0	4	1	0	0	1	1	0	0	0	0
84	860623	12-31	0630	71	88	77	2	1	3	1	-2	0.17	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
85	860623	12-31	0727	10	18	14	2	1	2	1	-2	0.37	CAB	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
86	860623	12-31	0835	41	64	51	2	1	3	3	-1	0.37	CAB	0	0	0	0	0	0	0	0	6	0	0	1	1	0	0	0	0	0
87	860623	12-31	0956	13	40	27	2	1	2	1	00	0.37	CAB	0	0	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0
88	860623	12-31	1105	71	91	80	2	1	2	1	+2	0.33	CAB	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0
89	860623	12-31	1200	46	68	55	4	2	3	1	+2	0.33	CAB	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0
90	860623	12-66	0650	44	60	54	2	1	2	1	-2	0.33	INF	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	1	0
91	860623	12-66	1645	10	38	18	2	2	4	1	-5	0.40	INF	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
92	860623	12-66	1725	10	38	18	2	2	4	1	-4	0.37	INF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	860624	12-65	0650	9	37	27	3	2	2	1	-2	0.40	CAB	1	0	0	0	0	0	0	0	10	2	0	0	1	0	0	0	0	0
94	860624	12-65	0745	42	60	51	3	2	2	1	-2	0.37	CAB	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
95	860624	12-65	0855	77	86	81	3	3	3	1	-1	0.33	CAB	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0
96	860624	12-65	1010	71	95	76	3	2	3	1	00	0.37	CAB	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0
97	860624	12-65	1110	18	37	27	3	1	2	1	+1	0.33	CAB	0	0	0	0	0	0	0	1	0	2	0	0	0	1	0	0	0	0
98	860624	12-65	1150	46	60	59	1	1	2	1	+2	0.27	CAB	0	0	0	0	0	0	0	1	7	2	0	1	0	0	0	0	0	0
99	860624	12-16	0644	71	84	75	2	4	3	1	-3	0.17	INF	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

Appendix table 3 (cont'd)

a) MSA 12

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	RF	CS	PC	PT	CO	DU	YT	QB	BL	RD	YE	KG	LC	RL	GR	FS	RS
100	860624	12-16	0744	41	56	50	3	2	2	1	-2	0.33	INF	0	0	0	0	0	0	0	1	3	0	0	1	0	0	0	0	0	0
101	860624	12-16	0828	10	36	24	2	3	3	1	-1	0.30	INF	0	0	0	1	0	1	0	2	6	0	0	0	1	0	0	0	0	0
102	860624	12-16	0955	12	30	20	3	3	4	1	00	0.23	INF	0	0	0	0	0	0	0	5	5	0	0	0	1	1	0	0	0	0
103	860624	12-16	1035	41	54	44	1	3	4	1	00	0.33	INF	1	0	0	0	0	0	0	2	4	0	0	0	0	0	0	0	0	1
104	860624	12-16	1200	71	82	74	1	3	3	1	+2	0.23	INF	0	0	0	0	0	0	0	0	8	0	1	0	0	0	0	0	0	0
105	860625	12-66	0657	46	64	55	2	3	4	1	-3	0.37	CAB	0	1	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
106	860625	12-66	0745	10	40	18	2	3	4	1	-3	0.33	CAB	0	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0
107	860625	12-66	0820	41	67	59	3	3	4	1	-2	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	860625	12-66	0855	10	37	27	1	2	4	1	-2	0.37	CAB	0	0	0	0	0	2	0	1	5	0	0	0	0	0	0	0	0	1
109	860625	12-66	1030	73	100	80	1	4	4	3	00	0.30	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
110	860625	12-66	1130	42	46	44	1	3	3	1	+1	0.33	CAB	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
111	860625	12-66	1202	10	40	27	1	2	3	1	+1	0.33	CAB	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1
112	860625	12-22	0650	41	66	50	3	3	2	1	-3	0.33	INF	1	0	0	0	0	0	0	2	3	0	0	0	1	0	0	0	0	0
113	860625	12-22	0805	41	66	50	3	1	2	1	-2	0.20	INF	0	0	0	0	0	0	0	0	9	0	0	1	0	1	0	0	0	0
114	860625	12-22	0920	10	20	18	1	2	2	1	-1	0.33	INF	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	0	0
115	860625	12-22	1030	15	40	24	1	2	2	1	00	0.33	INF	0	0	0	0	0	0	0	3	6	0	0	1	2	0	0	0	0	0
116	860625	12-22	1200	41	67	51	1	2	2	1	+1	0.33	INF	0	0	0	0	0	0	0	2	6	0	0	0	0	0	0	0	0	0
117	860625	12-22	1300	71	79	73	1	3	4	1	+2	0.07	INF	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
118	860626	12-65	0625	9	37	18	1	1	2	1	-4	0.30	CAB	0	0	0	0	0	0	1	5	4	2	0	0	1	1	0	0	0	0
119	860626	12-22	0815	71	92	77	1	1	2	1	-3	0.33	CAB	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
120	860626	12-38	0635	71	84	80	1	1	2	1	-4	0.30	INF	1	0	0	0	0	0	0	1	5	0	0	2	0	0	0	0	0	0
121	860626	12-22	0807	71	90	80	1	2	3	1	-3	0.17	INF	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
											TOTAL			41	3	2	14	1	13	2	61	314	19	1	11	42	18	4	3	1	5

Appendix table 3 (cont'd)

b) MSA 13

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF	VES	SPECIES[b]							
				(m)	(m)	(m)						(h)		DF	PC	CO	QB	YE	KG	LC	CB
1	860602	13-8	1546	18	27	22	1	3	3	3	+6	0.90	CAB	1	0	7	4	0	1	4	0
2	860603	13-8	1615	42	69	55	1	2	3	3	+5	0.50	CAB	0	0	0	11	0	1	2	0
3	860603	13-7	1710	24	33	27	1	2	3	3	-5	0.50	CAB	0	0	1	5	0	0	2	0
4	860603	13-7	1800	42	69	55	1	2	4	3	-4	0.05	CAB	0	0	0	1	0	0	0	0
5	860603	13-6	1823	18	27	22	1	2	3	3	+5	0.60	CAB	0	0	3	6	0	0	2	0
6	860604	13-5	1000	9	27	18	1	1	3	3	-1	0.50	CAB	0	0	1	6	0	0	2	0
7	860604	13-5	1100	46	69	60	1	2	3	3	00	0.35	CAB	0	0	0	4	0	0	4	0
8	860604	13-6	1200	55	69	60	1	1	3	3	+1	0.55	CAB	0	0	0	1	0	0	0	0
9	860604	13-6	1250	13	24	15	1	1	2	3	+2	1.30	CAB	0	0	10	2	0	2	3	0
10	860604	13-8	1445	77	79	78	1	2	2	3	+4	0.50	CAB	1	0	0	7	0	0	0	0
11	860604	13-7	1730	42	68	55	1	1	3	3	+6	0.50	CAB	5	1	0	5	0	0	0	0
12	860605	13-5	1045	15	40	24	2	1	3	3	-1	0.80	CAB	0	0	0	10	0	3	1	1
13	860605	13-5	1150	42	69	55	1	1	3	3	00	0.65	CAB	0	0	0	3	0	4	3	0
14	860605	13-6	1310	42	69	49	1	3	4	3	+1	0.35	CAB	0	0	0	0	0	0	0	0
15	860605	13-8	1500	9	40	24	1	1	4	3	+3	0.50	CAB	0	0	0	4	0	1	0	0
16	860605	13-8	1555	55	69	62	1	1	3	3	+4	0.55	CAB	0	0	0	4	0	0	0	0
17	860605	13-8	1710	77	82	79	1	1	2	3	+5	0.65	CAB	2	0	0	4	0	0	0	0
231	860728	13-2	1452	11	33	26	1	2	3	1	-2	0.35	CAB	0	0	7	3	0	1	2	0
232	860728	13-2	1537	41	70	51	3	3	4	1	-1	0.40	CAB	0	0	0	0	0	0	2	0
233	860728	13-2	1620	10	40	18	3	3	3	1	00	0.25	CAB	0	0	6	4	0	0	1	0
234	860728	13-2	1700	44	64	55	3	2	3	1	+1	0.40	CAB	1	0	0	6	0	0	2	0
235	860728	13-3	1840	10	40	24	3	3	4	3	+2	0.30	CAB	0	0	0	3	0	0	1	0
236	860729	13-3	1100	71	100	80	1	1	2	1	+3	0.40	CAB	0	0	0	3	2	0	0	0
237	860729	13-3	1147	41	64	49	1	1	2	1	+4	0.40	CAB	0	0	0	3	0	0	0	0
238	860729	13-3	1235	71	91	80	1	2	4	1	+4	0.40	CAB	0	0	0	3	0	0	1	0
239	860729	13-3	1339	10	37	13	1	2	2	1	+5	0.45	CAB	0	0	2	2	0	0	0	0
240	860729	13-3	1434	46	64	49	1	2	3	1	+6	0.35	CAB	0	0	0	7	0	0	1	0
241	860729	13-3	1535	18	40	22	1	2	4	1	-4	0.35	CAB	0	0	4	5	0	0	2	0

Appendix table 3 (cont'd)

b) MSA 13

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	PC	CO	QB	YE	KG	LC	CB
242	860729	13-2	1628	41	70	55	1	2	3	1	-2	0.35	CAB	0	0	0	2	0	0	3	0
243	860729	13-2	1735	13	37	26	3	2	1	1	00	0.35	CAB	0	0	4	5	0	0	1	0
244	860729	13-2	1808	41	62	48	3	1	1	1	+1	0.40	CAB	0	0	0	4	0	0	2	0
245	860729	13-2	1850	13	37	20	2	1	1	1	+2	0.30	CAB	0	0	6	6	0	0	0	0
246	860730	13-3	1030	73	80	77	2	1	1	1	+2	0.35	CAB	0	0	0	2	0	0	1	0
247	860730	13-3	1105	73	100	80	2	1	2	1	+3	0.35	CAB	0	0	0	5	0	0	0	0
248	860730	13-3	1204	15	37	20	4	1	2	1	+3	0.35	CAB	0	0	4	3	0	0	2	0
249	860730	13-3	1240	46	60	53	2	1	2	1	+3	0.35	CAB	0	0	0	4	0	0	3	0
250	860730	13-3	1314	18	26	20	2	1	2	1	+4	0.45	CAB	0	0	3	2	0	0	2	0
251	860730	13-3	1342	41	64	51	2	1	1	1	+4	0.40	CAB	0	0	0	2	0	0	1	0
252	860730	13-6	1439	46	59	53	2	1	3	1	+5	0.35	CAB	0	0	0	3	0	0	2	0
253	860730	13-6	1512	41	59	53	3	1	2	1	+5	0.45	CAB	0	0	0	2	0	0	2	0
254	860730	13-6	1602	10	37	13	2	1	2	1	+6	0.35	CAB	0	0	1	6	0	1	2	0
255	860730	13-5	1656	41	59	55	2	1	3	1	-4	0.40	CAB	0	0	0	1	0	0	2	0
256	860730	13-5	1740	10	15	11	2	1	3	1	-2	0.25	CAB	0	0	2	6	0	1	2	0
257	860730	13-5	1807	7	11	10	2	1	3	1	-1	0.35	CAB	0	0	3	6	0	2	1	0
258	860730	13-5	1843	51	59	55	2	1	1	1	00	0.35	CAB	0	0	0	2	0	1	0	0
259	860731	13-8	1141	10	37	15	1	1	3	1	+2	0.35	CAB	0	0	3	0	0	2	4	0
260	860731	13-8	1213	51	70	55	1	2	4	1	+2	0.15	CAB	0	0	0	2	0	0	2	0
261	860731	13-8	1310	10	18	11	1	1	3	1	+3	0.25	CAB	0	0	9	1	0	0	1	0
262	860731	13-7	1349	10	18	15	1	2	2	1	+4	0.35	CAB	0	0	1	3	0	0	0	0
263	860731	13-7	1422	44	60	51	1	2	2	1	+4	0.35	CAB	0	0	0	3	0	0	1	0
264	860731	13-7	1501	41	60	46	1	2	2	1	+5	0.35	CAB	0	0	0	7	0	0	1	0
265	860731	13-7	1542	10	40	15	1	2	3	1	+5	0.35	CAB	0	0	0	4	0	1	0	0
266	860731	13-7	1630	41	55	46	3	2	2	1	+6	0.35	CAB	0	0	0	2	0	0	1	0
267	860731	13-7	1657	15	37	26	1	2	2	1	+6	0.40	CAB	0	0	0	2	0	0	1	0
268	860731	13-8	1755	71	80	77	1	2	4	1	-4	0.15	CAB	0	0	0	2	0	0	0	0
269	860731	13-8	1753	41	66	49	1	1	4	1	-4	0.40	CAB	0	1	0	3	0	0	0	0
											TOTAL			10	2	77	206	2	21	72	1

Appendix table 3 (cont'd)

c) MSA 16

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	RF	PC	SG	CO	GS	YT	QB	TI	YE	KG	LC	PS	RS
122	860709	16-234	0743	13	38	18	3	3	2	1	-5	0.43	CAB	0	0	0	0	3	0	0	4	0	0	0	5	0	0
123	860709	16-234	0830	42	68	49	3	3	3	1	-4	0.53	CAB	0	0	0	0	0	0	0	1	0	0	0	1	0	0
124	860709	16-234	0930	13	33	18	3	3	3	1	-3	0.53	CAB	0	0	0	0	1	0	0	3	0	0	0	1	0	0
125	860709	16-234	1015	41	64	49	3	3	4	1	-3	0.50	CAB	0	0	0	0	0	0	0	1	0	0	0	0	0	0
126	860709	16-201	1115	9	38	18	3	3	3	1	-2	0.57	CAB	0	0	0	0	0	0	0	2	0	0	0	2	0	0
127	860709	16-201	1200	9	38	31	3	3	4	1	-1	0.53	CAB	0	0	0	0	0	0	0	0	0	0	0	1	0	0
128	860709	16-223	0820	71	100	80	3	3	3	1	-4	0.50	INF	0	0	0	0	0	1	0	2	0	2	0	1	0	0
129	860709	16-223	0942	41	54	43	1	3	3	1	-3	0.50	INF	1	0	0	0	0	0	0	0	0	1	0	1	0	0
130	860709	16-223	1035	12	36	20	2	3	3	1	-3	0.50	INF	0	0	0	0	1	0	0	2	0	0	0	0	0	0
131	860709	16-223	1126	71	96	78	2	4	3	1	-3	0.33	INF	0	0	0	0	0	0	0	0	0	0	0	0	0	1
132	860709	16-223	1209	41	70	54	3	3	2	1	-1	0.47	INF	0	0	0	0	0	0	0	0	0	0	0	1	0	0
133	860710	16-166	0730	71	100	85	4	2	4	1	+6	0.33	CAB	1	0	0	0	0	0	0	0	0	0	0	0	0	0
134	860710	16-166	0825	10	20	18	4	1	3	1	-5	0.50	CAB	0	0	0	0	2	0	0	2	0	0	0	1	0	0
135	860710	16-166	0920	41	70	58	4	2	3	1	-3	0.33	CAB	0	0	0	0	0	1	0	1	0	0	0	0	0	0
136	860710	16-166	1025	10	40	20	4	1	2	1	-3	0.50	CAB	0	0	0	0	0	0	0	2	0	0	0	0	0	0
137	860710	16-166	1120	41	66	51	2	2	2	1	-2	0.43	CAB	0	0	0	0	0	0	0	0	0	0	0	1	0	0
138	860710	16-166	1200	71	86	82	2	2	2	1	-2	0.37	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
139	860710	16-216	0710	71	96	78	4	1	2	1	+6	0.53	INF	0	0	0	0	0	0	0	2	0	1	0	0	0	0
140	860710	16-216	0835	42	60	45	4	1	2	1	-5	0.50	INF	0	0	0	0	0	0	0	2	0	1	0	0	0	0
141	860710	16-216	0930	11	35	12	4	1	2	1	-3	0.50	INF	0	0	0	0	3	0	0	3	0	0	0	2	0	0
142	860710	16-216	1023	71	100	78	2	1	3	1	-3	0.50	INF	0	0	0	0	0	0	0	2	0	2	0	0	0	0
143	860710	16-216	1145	42	66	49	2	1	3	1	-2	0.50	INF	0	0	0	0	0	1	0	2	0	1	0	0	0	0
144	860711	16-166	0735	71	88	82	2	1	2	1	+5	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
145	860711	16-166	0840	42	64	55	2	1	2	1	-5	0.37	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	860711	16-166	0925	9	33	22	4	1	1	1	-5	0.50	CAB	0	0	0	0	0	0	0	1	0	0	0	1	0	0
147	860711	16-166	1020	71	82	77	4	1	2	1	-3	0.30	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
148	860711	16-166	1100	42	64	44	4	1	1	1	-3	0.40	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	860711	16-166	1130	9	27	15	2	1	2	1	-3	0.43	CAB	0	0	0	0	0	0	0	1	0	0	0	1	0	0
150	860711	16-216	0715	10	16	11	2	1	2	1	+5	0.43	INF	0	0	0	0	4	0	0	0	0	0	0	3	0	0

Appendix table 3 (cont'd)

c) MSA 16

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF	VES	SPECIES[b]												
				(m)	(m)	(m)						(h)		DF	RF	PC	SG	CO	GS	YT	QB	TI	YE	KG	LC	PS	RS
151	860711	16-216	0809	71	100	84	2	1	3	1	+6	0.33	INF	0	0	0	0	0	0	0	3	0	0	0	0	0	0
152	860711	16-216	0910	41	66	44	2	1	3	1	-5	0.40	INF	0	0	0	0	0	0	0	7	0	1	0	0	0	0
153	860711	16-216	1007	71	100	78	2	1	4	1	-4	0.37	INF	0	0	0	0	0	0	0	1	0	0	0	0	0	0
154	860711	16-216	1100	10	28	12	4	1	2	1	-3	0.37	INF	0	0	0	0	6	0	0	1	0	0	0	2	0	0
155	860711	16-216	1146	41	66	44	4	1	3	1	-3	0.33	INF	0	1	0	0	0	0	0	1	0	1	0	0	0	0
156	860711	16-216	1237	10	30	20	4	1	2	1	-2	0.37	INF	0	0	0	0	1	0	0	2	0	0	1	1	0	0
157	860712	16-113	0710	41	64	44	2	2	3	1	+4	0.33	CAB	0	0	0	0	0	0	0	4	0	2	0	0	0	0
158	860712	16-113	0750	73	100	82	2	2	3	1	+4	0.30	CAB	0	0	0	0	0	0	0	1	0	1	0	0	0	0
159	860712	16-113	0845	10	26	16	3	2	3	1	+6	0.43	CAB	2	0	0	0	5	0	0	1	0	0	0	2	0	0
160	860712	16-113	0940	79	84	80	2	3	2	1	-5	0.37	CAB	1	0	0	0	0	0	0	0	0	0	0	0	0	0
161	860712	16-113	1019	41	55	48	3	3	2	1	-5	0.40	CAB	0	0	0	0	0	0	0	1	0	1	0	0	0	0
162	860712	16-113	1118	10	40	13	1	3	3	1	-4	0.50	CAB	1	0	0	0	0	0	0	0	0	0	0	2	1	0
163	860712	16-102	0700	71	80	72	2	1	1	1	+3	0.47	INF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	860712	16-102	0740	41	66	48	2	1	2	1	+4	0.33	INF	0	0	0	0	0	0	0	3	0	1	0	0	0	0
167	860712	16-102	1010	42	66	48	2	1	3	1	-5	0.50	INF	1	0	0	0	0	0	0	2	0	3	0	2	0	0
168	860712	16-102	1130	10	26	18	3	2	2	1	-4	0.50	INF	0	0	0	0	4	0	0	3	0	0	0	1	0	0
169	860713	16-113	0800	71	88	82	1	2	3	1	+3	0.33	CAB	0	0	0	0	0	1	0	2	0	1	0	0	0	0
170	860713	16-113	0850	71	88	82	3	2	3	1	+4	0.33	CAB	1	0	0	0	0	0	0	4	0	0	0	0	0	0
171	860713	16-113	0945	41	59	46	1	2	3	1	+5	0.33	CAB	0	0	0	0	0	0	0	2	0	2	0	0	0	0
172	860713	16-113	1035	9	33	15	1	2	2	1	+6	0.33	CAB	0	0	0	0	3	0	0	0	0	0	2	3	0	0
173	860713	16-113	1145	9	29	15	1	1	2	1	-4	0.33	CAB	0	0	0	0	2	0	0	0	0	0	1	3	0	0
174	860713	16-113	1225	41	71	55	1	1	3	1	-4	0.33	CAB	0	0	0	0	0	0	0	1	0	2	0	0	0	0
175	860713	16-234	0630	71	100	72	1	1	2	1	+1	0.37	INF	0	0	0	0	0	0	0	1	0	0	0	0	0	0
176	860713	16-234	0710	71	80	72	3	1	2	1	+2	0.40	INF	0	0	0	1	0	1	0	1	0	1	0	0	0	0
177	860713	16-102	0924	71	84	73	1	3	2	1	+5	0.37	INF	0	0	0	0	0	0	0	2	0	2	0	0	0	0
178	860713	16-102	1023	41	66	52	1	3	3	1	+6	0.33	INF	1	0	0	0	0	0	0	2	0	0	0	1	0	0
179	860713	16-102	1112	10	36	15	1	2	3	1	-5	0.37	INF	0	0	0	0	3	0	0	3	0	0	0	1	0	0
180	860713	16-102	1205	41	66	54	1	2	2	1	-4	0.37	INF	1	0	0	0	0	0	0	4	0	2	0	0	0	0

Appendix table 3 (cont'd)

c) MSA 16

REC	DATE	SITE	TIME	MIN (m)	MAX (m)	MED (m)	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF (h)	VES	SPECIES[b] DF	RF	PC	SG	CO	GS	YT	QB	TI	YE	KG	LC	PS	RS
181	860713	16-102	1300	10	38	18	1	2	2	1	-3	0.40	INF	0	0	0	0	2	0	0	0	0	1	0	1	0	0
182	860713	16-102	1340	75	98	82	1	2	4	1	-2	0.30	INF	0	0	0	0	0	0	0	2	0	3	0	0	0	0
183	860714	16-168	0716	41	70	55	2	1	2	1	+1	0.33	CAB	0	0	0	0	0	0	0	1	0	2	0	0	0	0
184	860714	16-168	0833	10	40	15	2	2	4	3	+3	0.37	CAB	0	0	0	0	0	1	0	3	0	1	0	0	0	0
185	860714	16-168	0926	26	31	27	2	1	1	1	+4	0.40	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	860714	16-168	0940	44	49	48	2	2	3	1	+4	0.33	CAB	1	0	0	0	0	0	1	1	0	0	0	0	0	0
187	860714	16-168	1125	10	33	22	1	2	4	3	+6	0.40	CAB	0	0	0	0	0	0	0	0	0	0	0	1	0	0
188	860714	16-168	1157	51	70	59	1	2	3	1	+6	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
189	860714	16- 73	0700	10	36	16	1	3	2	1	+1	0.37	INF	0	0	0	0	2	0	0	4	0	0	0	1	0	0
190	860714	16- 73	0755	42	66	54	1	3	1	1	+2	0.37	INF	0	0	0	0	0	1	0	2	0	0	0	0	0	0
191	860714	16- 73	0840	72	80	76	1	3	2	1	+3	0.33	INF	2	0	0	0	0	0	0	1	0	0	0	0	0	0
192	860714	16- 73	0930	10	36	18	1	3	2	1	+4	0.33	INF	0	0	0	0	0	0	0	6	0	1	0	0	0	0
193	860714	16- 73	1010	72	84	78	1	3	2	1	+4	0.43	INF	3	0	0	0	0	0	0	1	0	0	0	0	0	0
194	860714	16- 73	1115	42	64	48	3	3	2	1	+5	0.57	INF	0	0	0	0	0	0	0	1	0	1	0	0	0	0
195	860714	16-201	1245	10	24	18	1	2	2	1	-5	0.50	INF	0	0	0	0	0	0	0	1	1	0	0	0	0	0
196	860714	16-201	1340	12	30	20	1	2	2	1	-4	0.33	INF	1	0	0	0	0	0	0	0	0	0	0	0	0	0
197	860715	16-234	0640	9	40	15	4	3	3	1	00	0.60	CAB	0	0	0	0	1	0	0	1	0	0	0	2	0	0
198	860715	16-234	0740	42	66	48	2	3	3	1	00	0.40	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
199	860715	16-234	0820	71	100	73	2	1	3	1	+1	0.50	CAB	0	0	0	0	0	0	0	1	0	1	0	0	0	0
200	860715	16-234	0945	9	38	15	2	2	3	1	+2	0.37	CAB	0	0	0	0	0	0	0	3	0	0	0	1	0	0
201	860715	16-234	1100	48	62	55	3	2	2	1	+3	0.50	CAB	0	0	0	0	0	0	0	1	0	0	0	0	0	0
202	860715	16-234	1150	77	84	81	3	1	2	1	+4	0.47	CAB	0	0	0	0	0	1	0	1	0	0	0	1	0	0
203	860715	16- 73	0703	71	78	74	4	2	2	1	00	0.37	INF	1	0	0	0	0	0	0	1	0	0	0	0	0	0
204	860715	16- 73	0748	41	56	53	4	1	1	1	+1	0.37	INF	0	0	0	0	0	0	0	0	0	1	0	0	0	0
205	860715	16- 73	0826	10	30	16	3	3	2	1	+1	0.40	INF	0	0	0	0	0	0	0	5	0	0	0	1	0	0
206	860715	16- 73	0919	71	84	78	2	2	1	1	+2	0.47	INF	0	0	0	0	0	1	0	2	0	1	0	0	0	0
207	860715	16- 73	1023	41	58	50	2	2	2	1	+3	0.40	INF	0	0	0	0	0	0	0	0	0	1	0	0	0	0
208	860715	16- 73	1100	10	26	18	1	2	1	1	+3	0.50	INF	0	0	0	0	0	0	0	4	0	1	0	1	0	0
209	860715	16-242	1241	10	30	10	2	2	2	1	+5	0.40	INF	0	0	0	0	0	0	0	1	0	0	0	0	0	0

Appendix table 3 (cont'd)

c) MSA 16

REC	DATE	SITE	TIME	MIN	MAX	MED	W[a]	S[a]	C[a]	M[a]	TI[a]	EFF	VES	SPECIES[b]												
				(m)	(m)	(m)						(h)		DF	RF	PC	SG	CO	GS	YT	QB	TI	YE	KG	LC	PS	RS
210	860716	16-242	0633	22	37	27	3	4	3	1	-1	0.43	CAB	0	0	0	0	1	0	0	7	0	0	0	1	2	0
211	860716	16-242	0735	44	66	51	3	4	3	1	00	0.37	CAB	0	0	0	0	0	0	0	1	0	0	0	0	0	0
212	860716	16-242	0800	71	91	79	3	3	2	1	00	0.50	CAB	0	0	0	0	0	1	0	2	0	0	0	0	0	0
213	860716	16-242	0900	7	33	22	2	1	1	1	+1	0.37	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	1
214	860716	16-242	0956	77	99	84	2	3	4	1	+2	0.50	CAB	1	0	0	0	0	0	0	0	0	0	0	0	0	0
215	860716	16-242	1045	41	57	48	2	2	2	1	+2	0.50	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
216	860716	16-242	1130	77	86	80	2	1	2	1	+3	0.47	CAB	0	0	1	0	0	0	0	0	0	0	0	0	0	0
217	860716	16-242	1205	41	49	44	2	1	1	1	+3	0.50	CAB	0	0	1	0	0	0	0	0	0	0	0	0	0	0
218	860715	16-223	0710	12	36	16	3	3	3	1	-1	0.53	INF	0	0	0	0	4	0	0	0	0	0	0	0	0	0
219	860716	16-223	0815	42	65	54	3	3	3	1	00	0.50	INF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
220	860716	16-223	0910	71	82	72	2	4	4	1	+1	0.33	INF	0	0	0	0	0	0	0	0	0	0	0	0	0	0
221	860716	16-223	0935	10	24	16	2	2	2	1	+1	0.50	INF	0	0	0	0	5	0	0	1	0	0	0	1	0	0
221	860716	16-223	0935	10	24	16	2	3	2	1	+1	0.50	INF	0	0	0	0	0	0	0	1	0	0	0	0	0	0
222	860716	16-223	1100	71	80	72	2	3	3	1	+2	0.37	INF	0	0	0	0	0	0	0	1	0	0	0	0	0	0
223	860716	16-223	1140	10	32	18	2	2	2	1	+3	0.53	INF	0	0	0	0	5	0	0	0	0	0	1	0	0	0
224	860716	16-223	1245	42	54	46	2	2	2	1	+4	0.53	INF	0	0	0	0	0	0	0	1	0	1	0	2	0	0
225	860717	16-242	0727	5	22	13	4	3	4	1	-1	0.53	CAB	0	0	0	0	2	0	0	1	0	0	0	0	0	1
216	860717	16-242	0830	41	68	46	4	3	4	1	00	0.33	CAB	0	0	0	0	0	0	0	0	0	0	0	0	0	0
227	860717	16-242	0910	5	40	15	4	3	4	1	00	0.37	CAB	0	0	0	0	2	0	0	0	0	0	0	0	0	0
228	860717	16-242	1020	73	80	77	2	3	4	1	+1	0.27	CAB	0	0	0	0	0	0	0	1	0	0	0	0	0	0
229	860717	16-201	0725	10	30	16	4	1	2	1	-1	0.53	INF	0	0	0	0	4	0	0	2	0	0	0	1	0	0
230	860717	16-201	0830	10	36	20	4	1	3	1	00	0.50	INF	0	0	0	0	2	0	0	5	0	0	0	0	0	0
											TOTAL			20	1	2	1	68	10	1162		1	43	5	56	3	3

[a]Codes are described in Appendix 2.
[b]Codes for species names are described in Appendix 1.
[c]Sounder malfunction, depths are estimated.

Appendix table 4a. Codes used to describe rockfish maturity stages, from Nagtegaal and Farlinger (1980) and Westrheim (1975).

MATURITY	CODE	GONAD CONDITION
	0	unknown
	1	immature (translucent; males,stringlike; females small)
females	2	mature (small, yellow eggs; translucent or opaque)
	3	mature (large, orange-yellow eggs; opaque)
	4	fertilized (large, orange-yellow eggs; translucent)
	5	embryos or larvae (include eyed eggs)
	6	spent (large, flaccid, red ovaries. a few larvae may be present)
	7	resting (moderate size, firm, red-grey ovaries)
	8	resorbing
males	2	maturing (stringlike, translucent, white)
	3	developing (swelling, brown-white)
	4	developed (large, white; easily broken)
	5	running (running sperm)
	6	spent (flaccid, red)
	7	resting (ribbon-like; small, brown)

Appendix table 4b. Codes used to describe lingcod maturity stages, modified from Cass et al. (1984).

MATURITY CODE		GONAD CONDITION
	0	unknown
	1	immature; (males stringlike; females small)
	2	immature; (males flat, transparent and slightly enlarged; females, slightly enlarged)
females	3	ova are semi-transparent and less than 1 mm in diameter, ovaries fills one-third of the body cavity
	4	ova are opaque and about 1 mm in diameter, ovaries fill two thirds of the body cavity
	5	ova are less than 2 mm in diameter, ovaries fill 80% of body cavity
	6	ova are about 2 mm in diameter
	7	ripe (ova are larger than 2 mm in diameter, ovaries visibly fill and distend body cavity)
	8	spent (ovary may be bloodshot and purple in colour, ovary is flaccid and about one-third to two-thirds of the body cavity)
	9	resorbing (ova are large to opaque and degenerative)
	10	recovering (ovaries returning to pre-ripening stage (code 3) ovaries are firm and fill less than half the body cavity, ova are small)
	11	resting (ovaries fill less than one-third of the body cavity, no ova present)
males	3	testes enlarged, filling less than one-quarter of the body cavity and white to brown in colour
	4	testes enlarged to two-thirds of the body cavity, cross-sections of the gonad will produce milt
	7	ripe (testes are large and full of milt)
	8	spent (testes are flaccid, reduced in size and may contain some milt)
	11	resting (testes are less than one-third of the body cavity, usually brown in colour and devoid of milt)

Appendix table 5. Date, site, depth, sex, fork length (mm), weight (g), maturity and fish number for landed catch. Data are sorted by species, sex and length. A fish number indicates that otoliths (rockfish) or fin rays (lingcod) were collected.

	DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
a)	chinook salmon							
	860618	12- 66	55		432			
b)	Pacific cod							
	860622	12- 6	72		250			
	860622	12- 6	46		280			
	860624	12- 16	24		288			
	860618	12- 16	18		305			
	860731	13- 8	49		340			
	860716	16-242	80		358			
	860622	12- 6	72		555			
	860622	12- 36	11	1	291		1	
	860622	12- 36	11	1	366		1	
	860622	12- 36	11	1	425		7	
	860716	16-242	44	2	663	2900		
c)	Pacific tomcod							
	860617	12- 22	55		268			
d)	silvergrey rockfish							
	860713	16-234	72	1	459	1525	7	
e)	copper rockfish							
	860730	13- 3	20		259	320		8655
	860603	13- 6	22		290	401		7761
	860712	16-113	16	1	208	160	2	8539
	860712	16-113	16	1	210	170	1	8538
	860715	16-223	16	1	225	180	1	8561
	860728	13- 2	26	1	232	225	1	8623
	860717	16-201	16	1	234	240	1	8578
	860603	13- 7	27	1	235	209	1	7758
	860715	16-223	16	1	235	225	1	8562
	860716	16-223	16	1	237	230	1	8566
	860717	16-201	16	1	239	225	1	8580
	860712	16-102	18	1	240	240	1	8541
	860728	13- 2	26	1	240	225	1	8625
	860728	13- 2	18	1	244	250	7	8630
	860710	16-166	18	1	248	260	7	8521
	860729	13- 3	22	1	249	225	1	8645
	860619	12- 4	18	1	255	270	7	8506
	860710	16-216	12	1	255	300	7	8524
	860716	16-223	16	1	256	275	1	8565
	860731	13- 8	11	1	256	260	1	8671
	860709	16-234	18	1	258	300	1	8517

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
e) copper rockfish							
860713	16-113	15	1	258	300	1	8548
860717	16-201	20	1	259	280	1	8581
860715	16-223	16	1	260	260	1	8559
860731	13- 8	11	1	260	310	1	8670
860731	13- 8	11	1	260	310	1	8666
860716	16-223	16	1	262	310	7	8567
860716	16-223	18	1	264	300	1	8569
860729	13- 2	26	1	264	270	1	8642
860731	13- 8	15	1	265	290	1	8663
860619	12- 4	29	1	267	310	1	8505
860709	16-234	18	1	270	330	1	8516
860712	16-113	16	1	271	320	7	8536
860624	12- 16	24	1	273	375	7	8510
860625	12- 66	18	1	273[d]	350	1	8513
860712	16-102	18	1	273	310	1	8543
860716	16-223	16	1	274	325	7	8564
860711	16-216	11	1	275	360	7	8535
860717	16-201	16	1	275	360	1	8577
860729	13- 3	22	1	276	360	1	8644
860729	13- 2	20	1	276	325	1	8638
860709	16-223	20	1	278	340	1	8519
860711	16-216	11	1	278	350	7	8533
860712	16-113	16	1	278	360	7	8540
860713	16-113	15	1	278	310	7	8549
860713	16-102	15	1	278	340	7	8554
860710	16-166	18	1	280	390	7	8520
860729	13- 2	20	1	280	350	1	8637
860604	13- 6	15	1	281	391	7	7765
860729	13- 2	26	1	281[c]	480	1	8640
860618	12- 16	18	1	282	425	7	8501
860729	13- 3	13	1	282	360	1	8648
860604	13- 5	18	1	285	409	2	7762
860717	16-242	15	1	285	440	7	8576
860711	16-216	12	1	286	440	7	8528
860622	12- 36	11	1	290	410	7	8509
860729	13- 3	13	1	292	440	7	8647
860712	16-113	16	1	293	450	7	8537
860602	13- 8	22	1	295	450	7	7753
860730	13- 3	20	1	295	425	7	8652
860716	16-223	18	1	296	450	7	8572
860730	13- 3	20	1	296[c]	550	7	8653
860602	13- 8	22	1	298	400	7	7757
860604	13- 6	15	1	300	472	1	7770

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
e) copper rockfish							
860711	16-216	11	1	302	450	7	8532
860709	16-234	18	1	303	450	7	8518
860711	16-216	12	1	303	460	7	8531
860729	13- 2	20	1	304	475	7	8635
860604	13- 6	15	1	306	525	7	7768
860716	16-223	18	1	306	510	7	8568
860729	13- 3	22	1	308	450	7	8646
860731	13- 8	11	1	308	520	7	8668
860730	13- 5	10	1	310	540	7	8661
860602	13- 8	22	1	314	525	7	7755
860730	13- 6	13	1	316	560	7	8656
860728	13- 2	18	1	326	625	7	8631
860604	13- 6	15	1	328	611	7	7766
860731	13- 8	11	1	332	660	7	8669
860618	12- 42	10	1	335	720	7	8502
860604	13- 6	15	1	336	635	7	7772
860729	13- 2	20	1	350	710	7	8634
860604	13- 6	15	1	356	733	7	7769
860715	16-234	15	1	414[c]	550	7	8557
860728	13- 2	18	1	495[c]	425	1	8629
860711	16-216	12	2	188	125	1	8529
860716	16-223	18	2	195	125	1	8570
860716	16-223	18	2	219	160	1	8571
860714	16- 73	16	2	223	180	1	8555
860713	16-102	18	2	224	210	1	8551
860712	16-102	18	2	225	200	1	8544
860713	16-102	15	2	225	210	1	8553
860714	16- 73	16	2	227	210	1	8556
860711	16-216	11	2	232	230	1	8534
860730	13- 3	20	2	232	260	1	8650
860730	13- 3	20	2	232	260	7	8654
860713	16-102	15	2	234	260	7	8552
860620	12- 65	12	2	238	220	1	8507
860713	16-113	15	2	242	250	7	8547
860711	16-216	12	2	250	240	7	8530
860729	13- 2	26	2	253	260	7	8641
860712	16-102	18	2	254	260	7	8542
860729	13- 2	20	2	255	300	1	8636
860715	16-223	16	2	258	260	1	8560
860731	13- 8	11	2	259	340	1	8672
860602	13- 8	22	2	264	330	7	7754
860716	16-223	16	2	264	375	7	8563
860710	16-216	12	2	270	400	1	8522
860711	16-216	20	2	271	350	1	8525

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
e) copper rockfish							
860625	12- 66	27	2	272d	290	1	8511
860730	13- 3	20	2	273	360	7	8651
860602	13- 8	22	2	274	350	7	7752
860711	16-216	12	2	275	370	7	8527
860717	16-201	16	2	275	325	7	8579
860728	13- 2	18	2	278	410	7	8633
860728	13- 2	26	2	279	325	7	8624
860713	16-102	18	2	280	410	7	8550
860731	13- 8	11	2	280	420	7	8665
860709	16-234	18	2	282	440	1	8515
860730	13- 5	10	2	283	400	1	8660
860731	13- 8	15	2	283	460	7	8662
860711	16-216	12	2	285	450	1	8526
860619	12- 4	29	2	287	375	7	8504
860620	12- 65	12	2	287	380	7	8508
860731	13- 8	15	2	287	400	7	8664
860713	16-113	15	2	288	380	7	8546
860731	13- 7	15	2	291	470	7	8673
860603	13- 6	22	2	300	498	7	7759
860728	13- 2	26	2	302	470	1	8626
860604	13- 6	15	2	303	495	7	7771
860728	13- 2	18	2	307	500	1	8632
860728	13- 2	18	2	308	525	7	8628
860717	16-242	13	2	309	550	1	8573
860730	13- 5	10	2	316	540	7	8659
860710	16-216	12	2	318	540	7	8523
860602	13- 8	22	2	321	610	7	7751
860717	16-242	15	2	322	510	7	8575
860603	13- 6	22	2	323	562	7	7760
860717	16-242	13	2	323	560	7	8574
860619	12- 4	29	2	326	590	7	8503
860728	13- 2	26	2	327	530	7	8622
860730	13- 5	11	2	327	610	7	8658
860731	13- 8	11	2	330	630	7	8667
860728	13- 2	26	2	333[c]	225	1	8627
860729	13- 2	26	2	334	560	7	8639
860728	13- 2	26	2	340	730	7	8621
860604	13- 6	15	2	343	613	7	7764
860713	16-113	15	2	343	600	7	8545
860625	12- 66	27	2	345[d]	625	7	8512
860604	13- 6	15	2	350	751	7	7767
860729	13- 3	22	2	358	710	7	8643
860730	13- 5	11	2	360	850	7	8657
860604	13- 6	15	2	362	758	7	7763

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
e) copper rockfish							
860602	13- 8	22	2	364	790	6	7756
860716	16-242	27	2	415	1400	7	8558
860730	13- 3	20	2	436	1340	7	8649
f) dusky rockfish							
860626	12- 65	18	1	366d	800	7	
g) greenstriped rockfish							
860715	16-234	81	1	244	200	7	
860716	16-242	79	1	245	200	7	
860710	16-166	58	2	230	150	1	
860714	16- 73	54	2	250	210	7	
860713	16-113	82	2	256	250	7	
860710	16-216	49	2	260	250	7	
860715	16- 73	78	2	266	275	7	
860709	16-223	80	2	269	250	7	
860713	16-234	72	2	290	360	7	
h) yellowtail rockfish							
860618	12- 16	55	1	261	260	1	7841
860626	12- 65	18	1	267[d]	275	1	7894
860625	12- 66	27	1	268[d]	280	1	7880
860626	12- 65	18	1	277[d]	300	1	7893
860625	12- 66	27	1	278[d]	320	1	7881
860620	12- 65	54	1	282	330	1	7859
860625	12- 66	27	1	284[d]	320	1	7882
860625	12- 22	50	1	284[d]	360	1	7890
860618	12- 16	55	1	285[c]	860	7	7844
860622	12- 6	18	1	285	360	1	7898
860625	12- 22	24	1	287[d]	360	1	7885
860624	12- 65	76	1	288	430	1	7870
860619	12- 4	45	1	290	360	1	7857
860624	12- 16	24	1	290	350	1	7879
860626	12- 65	18	1	290[d]	350	1	7895
860618	12- 16	18	1	291	360	1	7851
860624	12- 16	20	1	291	370	1	7874
860620	12- 65	12	1	292	350	7	7861
860624	12- 16	20	1	292	480	1	7878
860625	12- 22	51	1	292[d]	380	7	7884
860618	12- 16	55	1	295	380	7	7846
860618	12- 16	82	1	295	375	7	7842
860618	12- 16	18	1	296	380	1	7848
860619	12- 4	18	1	297	420	7	7858
860625	12- 22	50	1	298	410	7	7889
860618	12- 16	18	1	300	450	7	7849
860618	12- 16	55	1	302	375	1	7845

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
h) yellowtail rockfish							
860617	12- 22	55	1	303	425	1	
860618	12- 16	18	1	306	450	7	7847
860618	12- 16	18	1	306	450	1	7850
860621	12- 38	26	1	308	425	1	7867
860624	12- 16	44	1	310	470	1	7871
860626	12- 38	80	1	310[d]	440	1	7897
860624	12- 16	24	1	311	490	1	7873
860618	12- 16	18	1	312	440	1	7854
860624	12- 16	50	1	312	500	1	7877
860625	12- 22	24	1	312[d]	400	1	7886
860624	12- 16	20	1	313	525	1	7876
860620	12- 65	12	1	318	450	7	7860
860621	12- 22	33	1	321	440	7	7862
860618	12- 16	18	1	322	520	7	7853
860624	12- 16	20	1	330	475	1	7875
860625	12- 22	18	1	336[d]	550	7	7888
860618	12- 16	82	1	361	750	7	7843
860619	12- 38	80	1	399	950	7	7856
860626	12- 65	18	2	283[d]	333	1	7896
860624	12- 65	59	2	288	400	1	7869
860625	12- 22	51	2	289[d]	350	1	7883
860618	12- 16	18	2	290	400	1	7852
860621	12- 22	33	2	298	450	1	7863
860624	12- 65	27	2	298	410	1	7868
860621	12- 22	33	2	300	450	1	7864
860621	12- 22	33	2	301	460	1	7865
860624	12- 16	44	2	302	410	1	7872
860626	12- 22	77	2	305[d]	470	1	7891
860626	12- 65	18	2	312[d]	440	1	7892
860621	12- 22	33	2	321	470	1	7866
860625	12- 22	24	2	332[d]	475	1	7887
860619	12- 38	80	2	434	1320	7	7855
860714	16-168	48	2	453	1425	7	
i) quillback rockfish							
860617	12- 31	49		368	800		8025
860617	12- 22	27	1	159	80	1	8016
860709	16-223	20	1	172	90	1	8332
860728	13- 2	18	1	184	120	1	8807
860712	16-102	48	1	189	130	1	8386
860621	12- 38	44	1	192	130	1	8167
860711	16-166	15	1	192	125	1	8352
860729	13- 2	48	1	195	130	1	8822

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860715	16- 73	18	1	205	180	1	8450
860730	13- 5	11	1	205	175	1	8896
860603	13- 7	27	1	210	183	1	7932
860619	12- 38	18	1	212	170	1	8074
860730	13- 3	20	1	214	220	1	8864
860618	12- 16	18	1	215	200	1	8057
860715	16- 73	16	1	215	180	1	8455
860618	12- 16	18	1	216	180	1	8051
860625	12- 66	27	1	217[d]	200	1	8278
860730	13- 3	20	1	217	175	1	8871
860603	13- 7	27	1	218	195	1	7931
860621	12- 38	48	1	218	225	1	8146
860730	13- 5	10	1	218	210	1	8888
860621	12- 38	44	1	226	230	1	8168
860731	13- 8	49	1	229	230	1	8928
860619	12- 38	18	1	230	220	1	8073
860709	16-234	18	1	230	275	1	8330
860713	16-113	46	1	230	200	1	8397
860730	13- 3	53	1	230	250	1	8867
860712	16-102	18	1	232	230	1	8393
860603	13- 8	55	1	233	232	1	7907
860712	16-113	44	1	233	250	1	8375
860714	16-168	55	1	233	200	1	8419
860712	16-102	18	1	235	230	1	8391
860712	16-102	18	1	235	210	1	8376
860714	16- 73	18	1	235	210	1	8431
860717	16-201	20	1	235	260	1	8475
860604	13- 5	18	1	238	297	1	7941
860621	12- 38	76	1	239	250	1	8162
860731	13- 7	15	1	239	240	1	8920
860603	13- 6	22	1	240	246	1	7937
860605	13- 5	24	1	241	297	1	7964
860603	13- 8	55	1	242	307	1	7911
860604	13- 8	78	1	242	302	1	7921
860618	12- 16	55	1	242	230	1	8040
860712	16-102	18	1	242	275	1	8383
860728	13- 2	55	1	242	260	1	8812
860730	13- 3	20	1	242	240	1	8866
860625	12- 22	50	1	243[d]	290	1	8293
860713	16-102	82	1	243	270	7	8404
860625	12- 22	24	1	244[d]	250	1	8287
860712	16-102	80	1	245	260	1	8389
860618	12- 16	18	1	250	300	1	8054
860729	13- 3	22	1	250	290	1	8835

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860729	13- 3	22	1	251	310	1	8836
860729	13- 2	26	1	251	275	1	8827
860712	16-102	18	1	252	280	1	8385
860730	13- 6	13	1	252	330	7	8879
860625	12- 22	51	1	253d	280	1	8282
860716	16-223	16	1	253	310	1	8472
860604	13- 5	60	1	255	315	1	7946
860603	13- 7	55	1	256	325	1	7916
860605	13- 5	24	1	256	297	7	7967
860729	13- 3	49	1	256	300	1	8845
860731	13- 7	46	1	256	390	1	8907
860731	13- 7	15	1	256	290	1	8921
860617	12- 22	12	1	257	290	1	8010
860622	12- 6	48	1	258	350	1	8316
860622	12- 6	18	1	259	425	1	8197
860605	13- 5	24	1	260	367	7	7970
860717	16-201	20	1	260	360	1	8479
860730	13- 6	13	1	260	320	1	8880
860731	13- 7	46	1	261	360	1	8917
860604	13- 5	18	1	262	340	1	7940
860604	13- 5	60	1	262	384	1	7949
860617	12- 22	55	1	262	350	1	8023
860711	16-216	84	1	262	360	1	8354
860730	13- 6	13	1	262	380	1	8877
860730	13- 5	11	1	262	390	1	8892
860603	13- 8	55	1	263	315	1	7913
860712	16-102	18	1	263	330	1	8392
860715	16- 73	18	1	263	360	7	8447
860728	13- 2	26	1	263	350	1	8801
860729	13- 2	20	1	263	350	1	8821
860604	13- 8	78	1	265	365	1	7919
860712	16-102	18	1	265	330	7	8384
860729	13- 2	26	1	265	330	1	8828
860714	16- 73	18	1	266	360	1	8429
860605	13- 8	24	1	267	390	1	7979
860620	12- 6	51	1	268	350	1	8101
860623	12- 66	54	1	269[c]	920	7	8215
860729	13- 2	20	1	269	475	7	8833
860622	12- 6	18	1	270	350	1	8191
860618	12- 16	55	1	271	350	1	8041
860710	16-166	18	1	271	280	1	8336
860731	13- 7	26	1	271	330	1	8923
860604	13- 5	18	1	272	441	7	7942
860729	13- 3	49	1	272	375	1	8840

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860730	13- 5	10	1	272	500	7	8899
860716	16-242	27	1	273	400	1	8465
860617	12- 22	55	1	274	350	7	8020
860709	16-234	18	1	274	360	1	8325
860729	13- 3	49	1	274	375	1	8844
860604	13- 5	18	1	275	425	1	7944
860222	12- 36	46	1	275	410	1	8182
860617	12- 22	12	1	277	440	1	8007
860712	16-102	48	1	278	330	1	8378
860715	16- 73	16	1	278	410	1	8457
860716	16-223	16	1	278	400	7	8471
860604	13- 7	55	1	279	410	1	7928
860624	12- 16	24	1	279	370	1	8260
860602	13- 8	22	1	280	500	7	7903
860618	12- 16	55	1	280[c]	890	7	8036
860621	12- 38	26	1	282	410	1	8154
860222	12- 36	46	1	282	400	7	8183
860712	16-102	18	1	282	340	7	8380
860729	13- 3	13	1	282	410	1	8847
860730	13- 3	80	1	282	450	1	8863
860730	13- 6	13	1	282	475	7	8878
860602	13- 8	22	1	283	440	7	7901
860712	16-102	18	1	283	430	7	8390
860624	12- 16	24	1	284	350	1	8261
860603	13- 7	27	1	285	426	7	7930
860621	12- 38	44	1	285	410	1	8169
860624	12- 65	59	1	285	450	1	8231
860716	16-223	72	1	285	470	1	8470
860729	13- 3	49	1	285	400	1	8842
860714	16- 73	18	1	286	410	7	8428
860712	16-102	18	1	287	425	7	8381
860729	13- 3	80	1	287	410	1	8849
860603	13- 6	22	1	288	501	7	7938
860625	12- 66	27	1	288[d]	360	1	8280
860714	16- 73	16	1	288	470	7	8436
860730	13- 5	55	1	288	460	1	8891
860619	12- 38	58	1	290	440	7	8075
860621	12- 38	44	1	290	420	1	8166
860624	12- 65	76	1	290	430	1	8228
860624	12- 16	44	1	290	400	1	8269
860711	16-216	44	1	290	475	1	8358
860605	13- 8	24	1	291	501	2	7978
860605	13- 5	24	1	292	492	2	7965
860619	12- 4	44	1	292	460	1	8088

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860729	13- 2	20	1	292	480	7	8819
860730	13- 5	10	1	292	560	7	8898
860709	16-223	20	1	293	425	7	8333
860711	16-216	44	1	294	460	1	8364
860730	13- 6	53	1	294	500	7	8884
860604	13- 7	55	1	295	554	7	7927
860618	12- 36	16	1	295	475	7	8062
860624	12- 16	50	1	295	490	1	8265
860711	16-216	44	1	295	475	7	8359
860716	16-242	27	1	295	450	1	8466
860717	16-201	20	1	295	490	7	8478
860605	13- 5	24	1	296	504	7	7963
860709	16-234	18	1	296	460	7	8331
860712	16-102	18	1	296	475	7	8382
860713	16-234	72	1	296	505	1	8416
860714	16-168	15	1	296	440	7	8422
860603	13- 8	55	1	297	538	7	7905
860712	16-113	44	1	297	425	1	8373
860715	16- 73	16	1	297	480	7	8456
860715	16-242	10	1	297	470	1	8446
860617	12- 22	12	1	298	460	7	8008
860623	12- 31	27	1	298	405	1	8206
860730	13- 3	51	1	298	625	1	8874
860617	12- 22	55	1	300	525	1	8021
860617	12- 22	82	1	300	500	1	8006
860617	12- 22	12	1	300	550	7	8011
860711	16-216	44	1	300	530	7	8363
860711	16-216	20	1	300	500	7	8367
860730	13- 5	10	1	300	550	7	8886
860730	13- 6	53	1	301	600	7	8883
860730	13- 6	53	1	301	560	1	8881
860730	13- 5	10	1	301	510	7	8887
860604	13- 5	18	1	302	578	7	7945
860624	12- 16	20	1	302	500	7	8257
860715	16-234	15	1	302	450	1	8442
860709	16-234	18	1	304	650	7	8324
860714	16-168	15	1	305	500	7	8420
860619	12- 38	58	1	306	460	7	8076
840620	12- 65	54	1	306	610	1	8115
860715	16-234	15	1	306	475	7	8445
860709	16-234	18	1	307	520	7	8326
860715	16-234	15	1	307	540	7	8441
860709	16-234	18	1	308	610	7	8329

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860731	13- 7	46	1	309	575	7	8908
860712	16-113	44	1	310	560	7	8374
860730	13- 6	13	1	310	525	7	8876
860731	13- 7	46	1	310	500	7	8905
860604	13- 6	15	1	312	547	7	7952
860618	12- 16	18	1	312	500	1	8050
860621	12- 22	33	1	312	560	7	8139
860622	12- 6	18	1	312	675	7	8190
860625	12- 22	18	1	312[d]	500	7	8291
860605	13- 5	55	1	313	600	7	7973
860620	12- 65	54	1	313	550	7	8130
860731	13- 7	46	1	314	700	7	8910
860617	12- 31	55	1	315	520	1	8027
860625	12- 22	24	1	315[d]	490	7	8290
860711	16-216	44	1	315	550	7	8357
860729	13- 2	48	1	316	530	1	8824
860730	13- 5	11	1	318	675	7	8894
860712	16-102	48	1	319	560	7	8377
860617	12- 22	82	1	320	625	7	8003
860620	12- 6	22	1	320	580	7	8103
860621	12- 4	18	1	320	675	7	8132
860621	12- 38	48	1	320	650	7	8147
860716	16-242	27	1	320	720	1	8463
860730	13- 3	51	1	320	675	7	8873
860621	12- 38	48	1	321	740	7	8144
860620	12- 6	22	1	322	650	7	8110
860621	12- 38	26	1	322	660	7	8153
860623	12- 31	27	1	322	610	7	8205
860710	16-216	78	1	322	590	7	8342
860717	16-242	77	1	322	660	7	8473
860717	16-201	16	1	322	675	7	8480
860620	12- 6	22	1	323	610	1	8108
860729	13- 3	49	1	323	560	7	8841
860623	12- 31	51	1	324	625	7	8210
860730	13- 3	20	1	324	600	7	8865
860604	13- 8	78	1	325	690	1	7918
860605	13- 8	79	1	325	669	7	7986
860619	12- 38	18	1	325	610	7	8072
860710	16-216	49	1	325	780	7	8341
860715	16-234	15	1	325	560	7	8443
860625	12- 22	50	1	328[cd]	200	1	8302
860625	12- 22	50	1	328[d]	580	7	8295

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860626	12- 65	18	1	328d	675	7	8305
860713	16-102	54	1	328	640	7	8408
860714	16- 73	48	1	328	575	7	8434
860730	13- 6	53	1	328	680	7	8882
860711	16-216	20	1	329	570	7	8368
860618	12- 16	18	1	330	580	7	8055
860619	12- 38	80	1	330	670	1	8080
860620	12- 6	22	1	330	700	7	8096
860621	12- 38	48	1	330	650	7	8145
860716	16-242	27	1	330	710	7	8467
860617	12- 31	55	1	331	710	7	8026
860619	12- 38	58	1	333	740	7	8067
860621	12- 38	26	1	333	710	7	8148
860625	12- 66	27	1	334[d]	620	7	8275
860625	12- 22	24	1	334[d]	610	7	8288
860623	12- 31	80	1	335	700	1	8202
860626	12- 38	80	1	335[d]	775	1	8311
860605	13- 5	55	1	337	753	7	7974
860620	12- 6	22	1	337	710	7	8104
860715	16-234	81	1	337	690	7	8439
860729	13- 3	49	1	337	710	7	8853
860714	16- 73	54	1	338	775	7	8433
860729	13- 2	55	1	338	700	7	8830
860622	12- 6	48	1	339	820	7	8200
860711	16-216	84	1	339	625	7	8356
860622	12- 6	12	1	340	700	7	8188
860713	16-102	54	1	340	675	7	8406
860715	16- 73	78	1	340	760	7	8452
860728	13- 2	55	1	340	770	1	8811
860617	12- 31	49	1	341	730	7	8024
860620	12- 6	22	1	341	730	7	8107
860731	13- 7	46	1	341	800	7	8909
860621	12- 4	51	1	342	825	7	8138
860604	13- 6	60	1	343	808	7	7950
860623	12- 31	51	1	343	750	7	8208
860624	12- 16	20	1	343	660	1	8255
860730	13- 3	80	1	343	870	7	8862
860621	12- 38	26	1	344	760	7	8151
860710	16-216	49	1	344	710	7	8351
860715	16- 73	78	1	344	830	7	8451
860618	12- 16	55	1	345	780	7	8039
860713	16-234	72	1	345	775	7	8417

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
1) quillback rockfish							
860731	13- 7	51	1	345	540	7	8913
860620	12- 65	12	1	346	610	1	8118
860618	12- 16	55	1	347	675	7	8047
860625	12- 66	55	1	347[d]	760	7	8272
860714	16-168	48	1	347	775	7	8421
860617	12- 22	82	1	348	680	7	8004
860618	12- 16	55	1	348	620	7	8044
860620	12- 6	22	1	348	660	7	8092
860622	12- 6	18	1	348	790	7	8192
860623	12- 66	18	1	348	800	7	8216
860624	12- 16	24	1	348	750	7	8258
860709	16-223	80	1	348	920	7	8335
860710	16-166	58	1	348	650	7	8338
860620	12- 6	51	1	349	720	7	8100
860625	12- 66	27	1	349[d]	675	7	8277
860619	12- 4	44	1	350	760	7	8089
860730	13- 3	77	1	350	775	7	8858
860709	16-234	49	1	354	820	7	8327
860728	13- 3	24	1	354	900	7	8816
860729	13- 3	80	1	354	910	7	8856
860620	12- 6	22	1	355	810	7	8095
860621	12- 38	76	1	355	780	7	8160
860605	13- 8	62	1	356	809	7	7982
860619	12- 38	80	1	356	830	7	8079
860621	12- 4	51	1	356	900	7	8136
860710	16-216	12	1	356	820	7	8346
860729	13- 2	48	1	356	840	7	8823
860624	12- 65	59	1	358	875	7	8220
860713	16-113	82	1	358[c]	1275	3	8402
860617	12- 31	27	1	359	725	7	8031
860625	12- 22	50	1	359[d]	720	7	8294
860619	12- 4	45	1	360	760	7	8082
860621	12- 38	26	1	360	990	7	8150
860624	12- 65	27	1	360	760	7	8237
860713	16-113	46	1	360	760	7	8396
840620	12- 65	54	1	361	820	7	8114
860716	16-242	27	1	361	925	7	8462
860620	12- 6	22	1	362	890	7	8094
860621	12- 38	44	1	362	870	7	8170
860625	12- 22	50	1	362[d]	840	7	8299
860713	16-102	73	1	362[c]	380	1	8414
860622	12- 6	46	1	363	860	7	8196

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
1) quillback rockfish							
860712	16-102	48	1	364	820	7	8388
860625	12- 66	18	1	365[d]	830	7	8273
860621	12- 38	76	1	366	930	7	8161
860729	13- 3	80	1	366	860	7	8854
860623	12- 31	51	1	367	1050	7	8209
860620	12- 65	54	1	368	850	7	8121
860623	12- 31	51	1	368	910	7	8212
860626	12- 38	80	1	368[d]	1110	7	8310
860626	12- 65	18	1	369[d]	900	7	8307
860624	12- 16	20	1	370	950	7	8254
860624	12- 16	74	1	370[d]	960	7	8250
860715	16- 73	74	1	370	1040	7	8458
860622	12- 6	46	1	371	900	7	8198
860620	12- 65	74	1	372	880	7	8124
860604	13- 5	60	1	373	921	7	7948
860618	12- 66	55	1	373	950	7	8059
860713	16-102	54	1	373	950	7	8409
860621	12- 38	26	1	374	910	7	8152
860620	12- 65	80	1	375	1000	7	8128
860620	12- 65	74	1	375	1090	7	8122
860713	16-102	82	1	375	1040	7	8405
860625	12- 22	51	1	380[d]	1060	7	8281
860222	12- 36	46	1	381	1060	7	8178
860624	12- 65	27	1	381	1080	7	8235
860624	12- 65	59	1	384	1100	7	8217
860713	16-102	54	1	384	890	7	8407
860624	12- 65	27	1	385	1075	7	8238
860619	12- 38	80	1	386	1080	7	8078
860713	16-113	55	1	387	1050	7	8395
860620	12- 65	80	1	388	1120	7	8125
840620	12- 65	54	1	388	1125	7	8112
860712	16-113	82	1	388	1180	7	8371
860729	13- 3	49	1	388	1240	7	8851
860623	12- 66	54	1	390	1030	7	8214
860709	16-234	49	1	390	1030	7	8323
860728	13- 2	55	1	390	1125	7	8813
860621	12- 38	44	1	391	1060	7	8165
860729	13- 2	48	1	391	1125	7	8825
860617	12- 22	55	1	392	1040	7	8018
860619	12- 4	45	1	392	1025	7	8084
860624	12- 16	44	1	392	1010	7	8252
860729	13- 3	80	1	394	1020	7	8855

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860729	13- 3	80	1	394	1170	7	8848
860624	12- 65	59	1	395	1140	7	8219
860712	16-113	44	1	395	1100	7	8372
860624	12- 65	59	1	396	1000	7	8221
860620	12- 65	54	1	397	1110	7	8129
860621	12- 38	44	1	398	960	1	8163
860624	12- 65	59	1	400	1150	7	8222
860714	16- 73	76	1	400	1140	7	8432
860731	13- 8	77	1	402	1260	2	8926
860624	12- 65	81	1	403	1390	7	8230
860617	12- 22	82	1	404	1425	7	8002
860624	12- 16	74	1	405[d]	1280	7	8245
860731	13- 8	77	1	406	1250	2	8925
860604	13- 8	78	1	410	1195	7	7917
860624	12- 16	74	1	411[d]	1265	7	8244
860621	12- 38	76	1	417	1310	7	8158
860619	12- 38	58	1	418	1400	7	8066
860713	16-113	82	1	418	1625	3	8399
860621	12- 38	44	1	420	1520	7	8164
860626	12- 22	80	1	420[d]	1610	7	8308
860624	12- 65	76	1	427	1260	7	8225
860623	12- 31	80	1	429	1500	1	8201
860713	16-113	82	1	429	1310	7	8398
860620	12- 6	22	1	430[c]	294	1	8111
860624	12- 65	81	1	435	1460	7	8229
860625	12- 22	51	1	438[cd]	675	7	8284
860624	12- 65	76	1	440	1550	7	8223
860621	12- 38	26	1	460[c]	825	7	8155
860729	13- 2	55	2	186	110	1	8831
860603	13- 6	22	2	200	169	1	7939
860728	13- 2	55	2	200	150	1	8808
860713	16-102	15	2	202	160	1	8410
860730	13- 5	11	2	203	225	1	8897
860602	13- 8	22	2	205	175	1	7904
860713	16-102	15	2	205	160	1	8418
860728	13- 2	18	2	210	150	1	8806
860729	13- 2	26	2	210	150	1	8826
860729	13- 2	26	2	210	120	1	8832
860729	13- 2	20	2	210	160	1	8820
860731	13- 8	55	2	212	220	1	8902
860731	13- 7	46	2	212	170	1	8906
860618	12- 16	18	2	215	160	1	8052

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
1) quillback rockfish							
860710	16-216	12	2	215	200	1	8348
860605	13- 5	24	2	217	164	7	7972
860605	13- 8	62	2	217	190	1	7980
860604	13- 8	78	2	222	227	1	7923
860729	13- 3	22	2	224	250	1	8838
860618	12- 16	55	2	225	175	1	8042
860713	16-102	52	2	225	225	1	8413
860713	16-102	15	2	225	220	1	8412
860731	13- 8	49	2	225	210	1	8927
860621	12- 22	33	2	227[c]	720	7	8142
860731	13- 8	11	2	227	280	1	8903
860712	16-113	16	2	228	225	1	8370
860619	12- 38	18	2	229	260	7	8068
860603	13- 8	55	2	230	229	1	7910
860619	12- 38	18	2	230	210	1	8069
860619	12- 38	15	2	230	250	1	8065
860617	12- 22	12	2	231	250	1	8013
860714	16- 73	18	2	231	220	1	8427
860619	12- 4	44	2	233	240	1	8087
860603	13- 8	55	2	234	250	1	7908
860622	12- 36	11	2	234	220	1	8184
860731	13- 7	15	2	234	230	1	8915
860712	16-102	18	2	235	210	1	8394
860603	13- 8	55	2	236	260	1	7912
860603	13- 7	27	2	237	239	1	7933
860619	12- 38	18	2	237	250	7	8071
860620	12- 6	51	2	238	240	1	8099
860603	13- 8	55	2	239	239	7	7906
860621	12- 38	44	2	239	250	1	8171
860624	12- 16	44	2	239	260	1	8251
860603	13- 8	55	2	240	226	1	7914
860624	12- 16	24	2	240	280	1	8262
860714	16-168	15	2	240	180	1	
860731	13- 7	51	2	241	280	1	8911
860623	12- 31	14	2	242	240	1	8213
860602	13- 8	22	2	243	375	7	7902
860621	12- 4	51	2	243	250	7	8134
860729	13- 3	22	2	244	280	1	8834
860603	13- 6	22	2	245	315	1	7936
860728	13- 2	26	2	245	250	1	8802
860729	13- 3	13	2	245	240	1	8846
860620	12- 6	22	2	246	250	1	8097

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860710	16-166	20	2	247	240	7	8340
860731	13- 7	15	2	247	310	1	8919
860716	16-223	46	2	248	300	1	8469
860731	13- 7	15	2	249	270	1	8922
860617	12- 31	55	2	250	250	1	8030
860622	12- 6	18	2	250	300	7	8193
860709	16-201	18	2	250	270	1	8322
860604	13- 8	78	2	251	287	1	7922
860731	13- 7	26	2	251	340	1	8924
860604	13- 6	15	2	252	273	1	7951
860729	13- 2	26	2	252	300	1	8829
860715	16- 73	16	2	253	260	1	8453
860618	12- 16	18	2	255	300	1	8058
860729	13- 2	20	2	255	290	1	8817
860730	13- 3	80	2	256	325	1	8861
860730	13- 5	55	2	260	350	1	8890
860604	13- 8	78	2	262	353	1	7920
860714	16- 73	16	2	263	350	1	8437
860712	16-102	48	2	264	320	7	8387
860619	12- 38	18	2	266	340	7	8070
860625	12- 22	24	2	266[cd]	775	7	8286
860715	16- 73	18	2	266	350	1	8449
860620	12- 6	22	2	267	325	1	8106
860603	13- 7	27	2	268	346	7	7929
860625	12- 22	24	2	268[d]	360	7	8285
860713	16-113	82	2	268	480	1	8401
860730	13- 5	11	2	268	450	7	8893
860603	13- 6	22	2	270	340	7	7934
860605	13- 5	24	2	270	359	7	7971
860605	13- 5	55	2	270	437	7	7975
860714	16- 73	16	2	270	340	7	8438
860715	16- 73	16	2	270	360	1	8454
860604	13- 5	18	2	272	414	7	7943
860731	13- 7	15	2	272	375	7	8916
860717	16-201	20	2	273	390	1	8476
860731	13- 8	55	2	274	460	1	8901
860622	12- 6	12	2	275	360	7	8186
860709	16-201	18	2	277	475	7	8321
860603	13- 6	22	2	278	367	7	7935
860621	12- 38	76	2	278	370	1	8159
860624	12- 65	27	2	278	450	7	8239
860605	13- 8	62	2	279	391	7	7981

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860605	13- 8	24	2	280	397	7	7977
860605	13- 8	79	2	280	436	1	7984
860710	16-216	12	2	280	410	7	8347
860711	16-166	22	2	280	400	7	8353
860716	16-242	51	2	280	375	1	8461
860730	13- 6	13	2	280	425	7	8875
860605	13- 5	24	2	282	477	7	7966
860730	13- 3	20	2	282	500	7	8872
860731	13- 7	15	2	282	500	7	8914
860717	16-201	20	2	284	410	1	8477
860730	13- 5	10	2	284	520	7	8889
860625	12- 22	24	2	285[d]	400	7	8289
860713	16-102	52	2	285	440	2	8411
860618	12- 16	18	2	286	430	7	8049
860618	12- 42	10	2	286	470	7	8061
860619	12- 38	15	2	286	420	7	8064
860624	12- 16	20	2	286	400	7	8268
860714	16-201	18	2	286	460	7	8423
860711	16-216	12	2	287	390	7	8366
860618	12- 36	16	2	288	430	7	8063
860714	16- 73	18	2	288	360	7	8430
860621	12- 22	33	2	289	550	7	8141
860730	13- 6	53	2	289	540	1	8885
860731	13- 7	51	2	289	520	7	8912
860605	13- 5	24	2	290	464	7	7969
860617	12- 22	12	2	290	410	7	8014
860713	16-113	82	2	290	590	7	8400
860730	13- 3	80	2	290	425	1	8860
860603	13- 8	55	2	293	481	1	7909
860605	13- 5	24	2	293	447	7	7968
860622	12- 6	12	2	294	530	7	8187
860728	13- 2	18	2	294	475	1	8805
860603	13- 8	55	2	295	448	7	7915
860605	13- 8	62	2	295	493	2	7983
860617	12- 31	27	2	295	450	7	8032
860617	12- 22	82	2	296	490	1	8005
860618	12- 16	18	2	296	450	1	8056
860621	12- 4	51	2	297	470	7	8135
860620	12- 6	22	2	298	430	1	8105
860728	13- 2	55	2	299	500	1	8809
860730	13- 5	55	2	299	550	7	8900
860621	12- 38	26	2	300	520	7	8156

Appendix table 5 (cont')

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860728	13- 2	26	2	302	510	1	8803
860731	13- 7	46	2	302	560	7	8904
860730	13- 3	53	2	303	525	1	8869
860623	12- 31	55	2	306	660	1	8203
860710	16-166	20	2	306	525	7	8339
860716	16-242	27	2	306	575	7	8468
860620	12- 6	22	2	308	510	7	8109
860622	12- 6	12	2	308	580	7	8185
860617	12- 31	27	2	310	575	7	8034
860623	12- 31	27	2	310	560	7	8204
860617	12- 22	82	2	311	550	7	8001
860709	16-234	18	2	313	675	7	8328
860729	13- 3	49	2	314	500	1	8843
860711	16-216	44	2	315	600	7	8360
860729	13- 3	49	2	316	720	1	8852
860617	12- 22	12	2	317	590	7	8012
860730	13- 3	53	2	318	650	1	8870
860715	16-234	55	2	320	525	7	8440
860711	16-216	84	2	321	580	7	8365
860605	13- 8	79	2	322	633	7	7987
860711	16-216	44	2	322	600	7	8362
860729	13- 2	20	2	324	540	1	8818
860617	12- 22	55	2	325	625	7	8022
860617	12- 31	55	2	325	610	7	8028
860621	12- 4	18	2	325	560	7	8133
860728	13- 3	24	2	325	700	1	8814
860715	16- 73	18	2	326	560	7	8448
860730	13- 5	11	2	327	650	7	8895
860710	16-166	18	2	328	510	7	8337
860619	12- 4	45	2	329	550	7	8083
860621	12- 4	18	2	329	780	7	8131
860617	12- 31	27	2	331	680	7	8033
860618	12- 16	55	2	331	660	7	8038
860620	12- 65	12	2	332	660	7	8120
860617	12- 22	12	2	333	690	7	8009
860625	12- 22	50	2	333[d]	650	7	8297
860714	16- 73	16	2	333	670	7	8435
860731	13- 7	46	2	333	650	7	8918
860222	12- 36	46	2	334	790	7	8181
860625	12- 66	44	2	334[d]	675	7	8279
860622	12- 6	48	2	335	660	7	8315
860709	16-223	80	2	337	680	7	8334

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860622	12- 6	18	2	338	690	7	8194
860622	12- 6	18	2	338	780	7	8189
860626	12- 38	80	2	338[cd]	1360	7	8312
860713	16-113	82	2	338	950	7	8403
860620	12- 65	12	2	340	660	7	8127
860622	12- 6	46	2	340	775	7	8199
860710	16-216	78	2	340	700	7	8343
860716	16-242	79	2	340	700	7	8460
860624	12- 16	50	2	341	680	7	8264
860617	12- 22	55	2	342	740	7	8019
840620	12- 65	54	2	342	780	7	8117
860621	12- 38	26	2	342	800	7	8149
860625	12- 22	51	2	342[d]	660	7	8304
860712	16-102	80	2	342[c]	250	1	8379
860625	12- 66	27	2	343[d]	690	7	8274
860711	16-216	44	2	343	550	7	8361
860618	12- 16	55	2	345	725	7	8045
860624	12- 16	20	2	345	720	7	8256
860626	12- 65	18	2	345[d]	800	7	8306
860617	12- 31	55	2	346	725	7	8029
860621	12- 38	76	2	346	730	7	8175
860625	12- 22	50	2	346[d]	700	7	8296
860710	16-216	78	2	346	710	7	8350
860710	16-216	45	2	346	710	7	8345
860711	16-216	78	2	346	775	7	8355
860605	13- 8	79	2	347	825	7	7985
840620	12- 65	54	2	348	860	7	8116
860714	16- 73	54	2	348	775	7	8424
860618	12- 16	55	2	349	690	7	8048
860622	12- 6	46	2	349	850	7	8195
860620	12- 6	22	2	350	730	7	8093
860621	12- 4	51	2	350	790	7	8137
860621	12- 38	76	2	350	750	7	8174
860728	13- 2	18	2	350	740	7	8804
860604	13- 5	60	2	352	920	7	7947
860619	12- 4	45	2	352	630	7	8085
860710	16-216	78	2	352	825	7	8349
860713	16-102	73	2	353	790	7	8415
860619	12- 4	45	2	355	700	7	8086
860620	12- 6	51	2	355	830	7	8102
860617	12- 22	55	2	357	1000	7	8017
860605	13- 8	24	2	358	893	7	7976

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860222	12- 36	46	2	358	800	7	8180
860625	12- 22	50	2	358[d]	775	7	8298
860729	13- 3	80	2	358	890	7	8850
860604	13- 7	55	2	360	982	7	7926
860621	12- 22	33	2	360	900	7	8140
860623	12- 31	51	2	360	760	7	8207
860728	13- 3	24	2	361	975	7	8815
860712	16-113	48	2	362	775	7	8369
860617	12- 31	27	2	364	900	7	8035
860625	12- 22	51	2	364[cd]	460	7	8283
860625	12- 22	50	2	366[d]	800	7	8292
860624	12- 16	74	2	368[d]	870	7	8249
860618	12- 16	82	2	373	1120	7	8043
860624	12- 16	24	2	373	840	7	8259
860710	16-216	45	2	374	1000	7	8344
860619	12- 38	58	2	375	1010	7	8077
860729	13- 3	49	2	375	940	7	8839
860625	12- 22	50	2	376[d]	925	7	8300
860716	16-242	79	2	377	1110	7	8459
860625	12- 22	50	2	378	750	7	8301
860626	12- 38	80	2	378[d]	940	7	8314
860619	12- 4	44	2	379	1100	7	8090
860604	13- 7	55	2	380	1093	7	7924
860617	12- 22	55	2	382	925	7	8015
860625	12- 66	27	2	384[d]	925	7	8276
860618	12- 16	18	2	385	1150	7	8053
860624	12- 65	27	2	385	1125	7	8236
860730	13- 3	77	2	386	1070	7	8857
860714	16- 73	78	2	387	1030	7	8425
860624	12- 16	50	2	388	1060	7	8266
860625	12- 66	55	2	388[d]	1050	7	8271
860624	12- 65	59	2	389	1160	7	8218
860624	12- 16	74	2	390[d]	1160	7	8246
860715	16-234	73	2	390	1040	7	8444
860624	12- 16	44	2	391	940	7	8253
860716	16-242	27	2	392[c]	475	1	8464
860717	16-242	13	2	392	1025	7	8474
860623	12- 31	51	2	393	1110	7	8211
860728	13- 2	55	2	393	1175	7	8810
860624	12- 65	27	2	394	1250	7	8240
860624	12- 65	76	2	395	1275	7	8227
860626	12- 65	18	2	395[d]	1140	7	8309

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
i) quillback rockfish							
860626	12- 38	80	2	395[d]	1370	7	8313
860222	12- 36	46	2	397	1220	7	8179
860620	12- 6	81	2	398	1150	7	8098
860625	12- 22	50	2	398[d]	1125	7	8303
860730	13- 3	53	2	398	1440	7	8868
860624	12- 65	27	2	400	1125	7	8241
860624	12- 65	51	2	401	1110	7	8242
860604	13- 7	55	2	402	1262	7	7925
860621	12- 38	76	2	402	1060	7	8157
860624	12- 65	27	2	402	1250	7	8233
860624	12- 16	75	2	402	1160	7	8267
860729	13- J	22	2	403	1150	7	8837
860730	13- 3	80	2	405	1210	7	8859
860624	12- 16	74	2	406[d]	1030	7	8243
860620	12- 65	74	2	410	1240	7	8123
860620	12- 65	12	2	410	1030	7	8119
860624	12- 65	27	2	410	1380	7	8232
860624	12- 16	74	2	410[d]	1175	7	8247
860618	12- 16	55	2	415	1220	7	8046
860620	12- 65	80	2	416	1280	7	8126
860619	12- 38	80	2	420	1170	7	8081
840620	12- 65	54	2	420	1480	7	8113
860624	12- 16	24	2	421	1400	7	8263
860624	12- 65	27	2	425	1375	7	8234
860624	12- 16	74	2	425[d]	1340	7	8248
860618	12- 16	55	2	428	1275	7	8037
860624	12- 65	76	2	428	1675	7	8226
860621	12- 38	44	2	429	1390	7	8173
860618	12- 66	55	2	435	1800	7	8060
860621	12- 38	48	2	435	1620	7	8143
860624	12- 65	76	2	435	1550	7	8224
860621	12- 38	44	2	438	1430	7	8172
j) black rockfish							
860620	12- 6	22	1	408	1180	3	8701
860624	12- 65	27	1	423	1300	7	8714
860620	12- 65	12	1	430	1360	7	8709
860624	12- 65	27	1	434	1330	7	8716
860626	12- 65	18	1	447[d]	1590	3	8717
860624	12- 65	27	1	461	1400	7	8713
860620	12- 65	12	1	462	1650	3	8706
860620	12- 6	22	1	468	1800	3	8702
860620	12- 6	22	1	470	2075	3	8703

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
j) black rockfish							
860620	12- 65	12	1	475	1720	7	8710
840620	12- 65	54	1	532	2425	3	8704
860620	12- 65	12	2	442	1475	7	8708
860624	12- 65	27	2	450	1530	7	8715
860620	12- 65	12	2	452	1470	7	8705
860620	12- 65	12	2	468	1550	7	8707
860624	12- 65	59	2	468	1675	7	8711
860624	12- 65	59	2	478	1675	7	8712
k) tiger rockfish							
860714	16-201	18	2	262	310	7	
l) redstripe rockfish							
860624	12- 16	74	2	288[d]	340	7	
m) yelloweye rockfish							
860713	16-102	82	1	235	220	1	8765
860714	16-168	55	1	238	210	1	8774
860714	16- 73	18	1	257	325	1	8778
860713	16-234	72	1	271	375	1	8772
860715	16- 73	50	1	285	370	1	8781
860713	16-113	55	1	289	400	1	8759
860714	16-168	15	1	290	380	1	8776
860712	16-113	44	1	298	400	2	8751
860713	16-113	46	1	342	780	1	8762
860714	16-168	55	1	345	700	1	8773
860712	16-102	48	1	368	910	1	8755
860709	16-223	80	1	388	1060	1	8742
860713	16-102	82	1	401	1175	1	8764
860713	16-113	55	1	403	1200	1	8760
860712	16-113	82	1	428	1550	7	8753
860710	16-216	49	1	439	1300	7	8744
860713	16-113	82	1	445	1560	1	8763
860715	16-234	73	1	488	1940	7	8779
860729	13- 3	80	1	506	2360	7	8932
860709	16-223	43	1	517	2375	7	8743
860623	12- 66	54	1	560	3600	7	8726
860623	12- 31	51	1	571	3350	7	8724
860623	12- 66	54	1	572	3150	7	8725
860624	12- 16	50	1	592	3310	7	8734
860626	12- 38	80	1	633[d]	4500	7	8733
860713	16-113	46	1	660	5540	7	8761
860626	12- 38	80	1	694[d]	5675	7	8732
860715	16- 73	78	2	256	270	1	8782
860713	16-102	54	2	262	320	1	8769

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
m) yelloweye rockfish							
860715	16- 73	18	2	277	340	1	8780
860714	16- 73	48	2	294	410	1	8777
860711	16-216	44	2	298	450	1	8749
860710	16-216	45	2	310	540	1	8747
860712	16-102	48	2	328	625	1	8758
860710	16-216	78	2	357	720	1	8745
860715	16- 73	53	2	360	840	1	8783
860713	16-102	73	2	380	1025	1	8770
860713	16-102	82	2	382	925	7	8766
860713	16-102	73	2	389	910	7	8771
860711	16-216	44	2	390	940	1	8750
860716	16-223	46	2	392	960	1	8784
860713	16-102	54	2	393	940	1	8768
860712	16-102	48	2	394	1040	7	8757
860710	16-216	78	2	395	1060	7	8748
860712	16-113	48	2	409	1125	7	8754
860712	16-113	44	2	411	1120	1	8752
860710	16-216	78	2	430	1270	7	8746
860712	16-102	48	2	465	1690	7	8756
860729	13- 3	80	2	510	2340	7	8931
860709	16-223	80	2	543	2660	7	8741
860713	16-102	18	2	547	2850	7	8767
860619	12- 38	80	2	591	3600	7	8721
860625	12- 22	24	2	598[d]	3600	7	8730
860624	12- 65	51	2	602	3940	7	8729
860625	12- 22	50	2	678[d]	5690	7	8731
860624	12- 65	59	2	767	7975	7	8727
n) kelp greenling							
860617	12- 31	18		348			
860604	13- 6	15		353	555		
860617	12- 31	18		356			
860604	13- 6	15		363	694		
860617	12- 31	18		380			
840620	12- 65	54		404			
860625	12- 22	18	1	285[d]			
860731	13- 7	15	1	295			
860603	13- 8	55	1	306	355	1	
860713	16-113	15	1	310			
860620	12- 65	12	1	317			
860620	12- 65	12	1	330			
860625	12- 22	24	1	330[d]			
860622	12- 6	12	1	341			

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
n) kelp greenling							
860728	13- 2	26	1	343			
860605	13- 8	24	1	346	523	2	
860625	12- 22	24	1	347[d]			
860617	12- 22	12	1	350			
860716	16-223	18	1	350			
860617	12- 31	27	1	353			
860605	13- 5	24	1	356	579	2	
860731	13- 8	15	1	356			
860620	12- 65	12	1	358			
860730	13- 5	10	1	360			
860617	12- 22	55	1	361			
860619	12- 4	18	1	364			
860730	13- 5	10	1	365			
860621	12- 22	33	1	368			
860617	12- 22	55	1	370			
860624	12- 16	24	1	370			
860622	12- 6	18	1	375			
860626	12- 65	18	1	375[d]			
860731	13- 8	15	1	375			
860621	12- 4	51	1	380			
860622	12- 36	11	1	380			
860624	12- 65	27	1	380			
860605	13- 5	24	1	382	729	2	
860730	13- 6	13	1	385			
860619	12- 4	18	1	386			
860624	12- 16	20	1	386			
860623	12- 31	51	1	389			
860619	12- 4	18	1	390			
860622	12- 6	18	1	390			
860619	12- 38	18	1	400			
860605	13- 5	55	1	403	922	2	
860605	13- 5	24	1	404	790	2	
860730	13- 5	11	1	414			
860621	12- 38	26	1	429			
860713	16-113	15	2	283			
860602	13- 8	22	2	319	410	2	
860618	12- 42	10	2	332			
860713	16-113	15	2	344			
860711	16-216	20	2	361			
860620	12- 6	22	2	367			
860620	12- 65	12	2	378			
860621	12- 4	18	2	380			

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
n) kelp greenling							
860730	13- 5	55	2	380			
860625	12- 22	73	2	383[d]			
860625	12- 22	50	2	385[d]			
860621	12- 4	18	2	390			
860623	12- 31	55	2	401			
860619	12- 4	18	2	410			
860605	13- 5	55	2	412	937	2	
860605	13- 5	55	2	413	839	2	
860605	13- 5	55	2	420	954	2	
860622	12- 6	18	2	425			
860621	12- 4	18	2	440			
860621	12- 38	76	2	471			
o) lingcod							
860602	13- 8	22	1	284	182	2	1
860711	16-166	22	1	308	225	2	55
860712	16-113	16	1	325	270	2	64
860730	13- 3	20	1	325	310	2	111
860730	13- 3	53	1	325	275	2	113
860728	13- 2	18	1	330	300	2	96
860729	13- 2	55	1	330	260	2	104
860731	13- 8	15	1	332		2	
860731	13- 8	15	1	333		2	
860730	13- 6	13	1	335	350	2	123
860712	16-102	18	1	336	350	2	68
860709	16-201	18	1	342	300	2	46
860712	16-113	13	1	342	310	2	63
860711	16-166	15	1	344	310	2	54
860709	16-201	31	1	354	325	2	44
860729	13- 3	22	1	355	335	2	107
860710	16-216	12	1	362	400	2	52
860711	16-216	20	1	380	500	2	56
860713	16-102	15	1	395	590	11	78
860604	13- 5	18	1	407	617	11	11
860730	13- 6	53	1	407	550	2	119
860711	16-216	11	1	410	620	2	59
860731	13- 8	55	1	420	590	11	131
860713	16-113	15	1	428	690	11	75
860729	13- 3	22	1	430	690	2	106
860730	13- 5	11	1	430	700	2	127
860709	16-234	49	1	432	625	2	41
860713	16-113	15	1	442	800	11	71
860728	13- 2	51	1	447	740	2	94

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
o) lingcod							
860604	13- 6	15	1	450	704	11	16
860730	13- 6	53	1	450	770	11	122
860602	13- 8	22	1	455	890	11	3
860602	13- 8	22	1	463	889	11	4
860715	16-234	15	1	464	880	11	83
860620	12- 6	22	1	465	840	2	30
860712	16-113	13	1	466	870	2	62
860709	16-234	18	1	467	900	11	40
860715	16-234	15	1	468	850	11	84
860714	16- 73	16	1	470	970	11	81
860730	13- 3	51	1	471	1000	2	118
860604	13- 5	60	1	472	909	2	13
860618	12- 42	12	1	477	820	2	27
860625	12- 66	18	1	477[d]	875	2	37
860604	13- 5	18	1	480	1123	2	12
860713	16-113	15	1	482	1060	11	76
860730	13- 3	77	1	487	1050	11	110
860603	13- 6	22	1	488	1082	11	9
860731	13- 8	15	1	491	1080	11	132
860730	13- 3	20	1	500	1150	11	116
860730	13- 5	55	1	501	1150	11	125
860605	13- 5	55	1	502	1093	11	22
860603	13- 7	27	1	507	1321	11	8
860730	13- 5	11	1	511	1150	11	126
860730	13- 3	53	1	512	1250	11	114
860730	13- 3	20	1	513	1275	11	117
860604	13- 5	60	1	515	1273	11	15
860709	16-234	18	1	515	1150	2	39
860605	13- 5	24	1	518	1159	11	19
860712	16-113	16	1	518	1310	11	65
860603	13- 6	22	1	523	1359	11	10
860710	16-216	12	1	528	1400	11	53
860604	13- 6	15	1	530	1307	11	18
860730	13- 3	53	1	530	1440	11	115
860603	13- 8	55	1	555	1737	11	5
860624	12- 16	20	1	560	1700	11	36
860605	13- 5	55	1	580	1912	11	20
860618	12- 16	18	1	582	1800	11	24
860620	12- 6	22	1	582	1800	11	29
860618	12- 16	18	1	595	2060	11	25
860623	12- 31	27	1	610	2225	11	34
860622	12- 6	12	1	612	2130	11	33

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
o) lingcod							
860618	12- 16	18	1	615	2550	11	26
860624	12- 65	27	1	615	1900	11	35
860620	12- 65	54	1	633	2350	11	32
860620	12- 6	22	1	640	2280	11	31
860731	13- 7	26	1	644	3030	11	136
860602	13- 8	22	2	305	214	2	2
860617	12- 31	18	2	305	240	2	23
860728	13- 2	26	2	312	225	2	93
860713	16-102	18	2	317	280	2	77
860713	16-113	15	2	326	280	2	73
860712	16-102	18	2	330	310	2	70
860716	16-223	46	2	333	280	2	90
860728	13- 2	26	2	336	310	2	92
860729	13- 2	48	2	338	300	2	101
860729	13- 2	26	2	344	310	2	102
860731	13- 8	15	2	346		2	
860709	16-201	18	2	349	310	2	47
860711	16-216	11	2	352	370	2	61
860712	16-102	18	2	352	350	2	69
860730	13- 3	20	2	355	350	2	112
860717	16-201	16	2	357	360	2	91
860713	16-113	15	2	358	350	2	72
860728	13- 2	55	2	420	625	2	98
860730	13- 5	55	2	423	575	2	124
860709	16-234	18	2	427	560	2	43
860730	13- 5	10	2	442	725	2	128
860728	13- 2	55	2	443	725	2	97
860713	16-113	15	2	447	710	2	74
860715	16- 73	18	2	447	850	3	86
860731	13- 8	55	2	451	800	2	130
860709	16-234	18	2	452	750	2	42
860713	16-102	52	2	454	870	2	79
860729	13- 2	55	2	456	740	2	105
860709	16-234	18	2	462	810	2	38
860715	16-234	15	2	465	800	2	85
860712	16-102	48	2	470	940	3	66
860603	13- 7	27	2	483	1057	2	7
860711	16-216	12	2	486	925	3	58
860728	13- 2	51	2	486	930	2	95
860710	16-166	51	2	490	975	3	50
860711	16-216	11	2	495	1020	3	60
860712	16-102	48	2	495	1060	2	67

Appendix table 5 (cont'd)

	DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
o)	lingcod							
	860731	13- 7	46	2	499	1000	3	133
	860711	16-216	12	2	504	1130	3	57
	860605	13- 5	55	2	505	1191	2	21
	860731	13- 8	11	2	507	1210	3	129
	860709	16-234	18	2	508	1160	3	45
	860716	16-223	46	2	510	1210	3	89
	860730	13- 6	13	2	510[c]	540	2	120
	860709	16-223	80	2	513	1220	3	48
	860728	13- 3	24	2	520	1200	3	99
	860715	16-234	81	2	521	1210	3	82
	860604	13- 6	15	2	523	1304	2	17
	860604	13- 5	60	2	530	1359	2	14
	860715	16- 73	16	2	530	1425	3	87
	860716	16-242	27	2	540	1260	3	88
	860729	13- 2	48	2	550	1400	2	100
	860731	13- 7	46	2	580	1910	3	135
	860731	13- 7	51	2	582	1920	3	134
	860729	13- 2	55	2	596[c]	1050	3	103
	860710	16-166	18	2	598	2010	3	51
	860619	12- 38	15	2	600	2010	3	28
	860729	13- 3	80	2	600	1990	3	109
	860709	16-223	43	2	607	1990	3	49
	860603	13- 8	55	2	620	2335	3	6
	860729	13- 3	49	2	620	2160	3	103
	860714	16-168	22	2	623	2000	3	80
	860730	13- 6	53	2	666	3050	3	121
p)	red Irish lord							
	860619	12- 4	29		312			
	860619	12- 4	29		320			
	860619	12- 4	18		322			
q)	Pacific sanddab							
	860712	16-113	13		283	310		
	860716	16-242	27	2	280	225		
	860716	16-242	27	2	304	325		
r)	flathead sole							
	860623	12- 66	54		470			

Appendix table 5 (cont'd)

DATE	SITE	DEP (m)	SEX[a]	LEN (mm)	WGT (g)	MAT[b]	FISH NO.
s) rock sole							
860709	16-223	78		275			
860625	12- 66	27		362[d]			
860625	12- 66	27		369[d]			
860620	12- 6	51		392			
860624	12- 16	44		396			
860618	12- 66	55		412			
860716	16-242	22	2	296	320		
860717	16-242	13	2	352	550		

[a]1=male; 2=female.
[b]Maturity codes are described in Appendix 4.
[c]Error in length or weight measurement.
[d]Caught with small bait.

Appendix 6. Date, species, number observed, length (mm), sex, maturity and fish number for fish sampled from the recreational fishery at Telegraph Cove and Duncan Cove Marina, Duncan Bay. A fish number indicates that fin rays (lingcod) were collected.

DATE	SPECIES[a]	CNT	LEN	SEX[b]	MAT[c]	NO
a) Telegraph Cove (area 12)						
860626	UNK	2				
860617	UNK	1	350	1	1	
860618	UNK	1	515	2	7	
860623	CO	1				
860620	CO	1	274	1	1	
860620	CO	1	302	2	1	
860623	CO	1	392			
860623	DU	1	258			
860620	DU	1	320	2	7	
860620	DU	1	328	1	7	
860623	DU	1	400	1	7	
860623	DU	1	440	2	7	
860623	DU	1	455			
860616	YT	2				
860617	YT	1				
860623	YT	4				
860623	YT	1	251			
860623	YT	2	265			
860623	YT	1	275			
860623	YT	1	286			
860623	YT	1	290			
860623	YT	1	290			
860623	YT	1	292			
860623	YT	1	295			
860617	YT	1	298	1	7	
860617	YT	1	298	1	7	
860623	YT	1	298			
860617	YT	1	299	1	1	
860617	YT	1	300	1	1	
860617	YT	1	306	1	7	
860617	YT	1	309	1	7	
860617	YT	1	310	1	7	
860617	YT	1	312			
860625	YT	1	312	1	1	
860617	YT	1	316	1	7	
860617	YT	1	330			
860617	YT	1	332			
860617	YT	1	394			
860617	YT	1	422			
860617	YT	1	485			

Appendix table 6 (cont'd)

DATE	SPECIES[a]	CNT	LEN	SEX[b]	MAT[c]	NO
a) Telegraph Cove (area 12)						
860616	QB	1				
860617	QB	3				
860619	QB	1				
860623	QB	1	296			
860620	QB	1	302	2	7	
860623	QB	1	341			
860618	QB	1	350	1	7	
860623	QB	1	364	2	7	
860620	QB	1	372	2	7	
860618	QB	1	378	1	7	
860618	QB	1	382	1	7	
860618	QB	1	390	2	7	
860617	QB	1	393	2	7	
860617	QB	1	394	2	7	
860623	QB	1	402	2		
860618	QB	1	405	2	7	
860618	QB	1	411	1	7	
860620	QB	1	418	1	7	
860617	QB	1	450	1	7	
860617	QB	1	450	1	7	
860618	QB	1	450	2	7	
860620	QB	1	461	2	7	
860617	BL	6				
860617	BL	1	315			
860617	BL	1	317			
860617	BL	1	335			
860620	BL	1	343	2	7	
860617	BL	1	353			
860620	BL	1	383	1	1	
860620	BL	1	438	2	7	
860625	BL	1	491	1	1	
860619	BO	1				
860617	BO	1	680	1	7	
860617	BO	1	715	1	7	
860617	BO	1	733	1	7	
860617	BO	1	833	2	7	
860616	YE	1				
860617	YE	2				
860619	YE	1				
860626	YE	1				
860622	YE	1	517	2	7	
860618	YE	1	525	2	7	
860617	YE	1	540	1	7	
860620	YE	1	555	2	7	
860617	YE	1	570	1	7	

Appendix table 6 (cont'd)

DATE	SPECIES[a]	CNT	LEN	SEX[b]	MAT[c]	NO
a) Telegraph Cove (area 12)						
860623	YE	1	622	2	7	
860620	YE	1	635	2	7	
860620	YE	1	645	2	7	
860622	YE	1	674	1	7	
860623	YE	1	676	1	7	
860617	YE	1	700	2	7	
860620	YE	1	701	2	7	
860620	YE	1	704	1	7	
860623	YE	1	724	1	7	
860623	KG	2		1		
860623	KG	1		2		
860620	KG	1	330	1		
860616	LC	1				140
860617	LC	1				
860623	LC	5				
860626	LC	5				
860620	LC	1	666	1		
860623	LC	1	676	1		144
860617	LC	1	765	2	3	141
860625	LC	1	810	1		143
860622	LC	1	1150	2		142
		129				
b) Duncan Cove (area 16)						
860713	CO	1	210	1	7	
860713	CO	1	256	2	1	
860713	CO	1	262	1	1	
860713	CO	1	268	2	7	
860713	CO	1	272	1	1	
860713	CO	1	274	1	1	
860713	CO	1	275	1	1	
860713	CO	1	280	2	1	
860713	CO	1	286			
860713	CO	1	301	2	7	
860713	CO	1	302	1	7	
860713	CO	2	304	2	7	
860713	CO	1	304	1	7	
860712	CO	1	312			
860713	CO	1	312	1	7	
860713	CO	1	320	2	7	
860714	CO	1	320	1	7	
860714	CO	1	323	2	7	
860714	CO	1	327	2	7	
860713	CO	1	328	2	7	

Appendix table 6 (cont'd)

DATE	SPECIES[a]	CNT	LEN	SEX[b]	MAT[c]	NO
b) Duncan Cove (area 16)						
860717	CO	1	332	1	7	
860713	CO	1	334	1	7	
860713	CO	1	345	2	7	
860713	CO	1	352	2	7	
860713	CO	1	360	2	7	
860713	CO	1	366	1	7	
860714	CO	1	416	2	7	
860714	QB	1	291	1	1	
860711	QB	1	295	1	7	
860715	QB	1	300	1	7	
860714	QB	1	308	2	7	
860711	QB	1	312	1	7	
860713	QB	1	350	1	7	
860714	QB	1	350	1	7	
860713	QB	1	372	2	7	
860713	QB	1	380	2	7	
860714	QB	1	392	2	7	
860713	QB	1	409	2	7	
860713	QB	1	420	2	7	
860717	QB	1	428	2	7	
860714	QB	1	431	2	7	
860717	QB	1	434	2	7	
860713	TI	1	329	1	7	
860712	YE	1	402	1	1	
860716	KG	1	291	1		
860713	KG	1	350	1		
860713	KG	1	350	2		
860713	KG	1	387	2		
860713	LC	1				158
860712	LC	1	407	1	11	150
860713	LC	1	444	2	2	
860712	LC	1	458	1	11	154
860715	LC	1	462	2		
860715	LC	1	480	1		164
860712	LC	1	491	1	11	151
860712	LC	1	500	1	11	152
860712	LC	1	505	2		149
860717	LC	1	507	1		
860714	LC	1	508	1		162
860713	LC	1	510	2	3	
860717	LC	1	520	1		
860711	LC	1	523	1	11	146
860712	LC	1	542	1		147
860714	LC	1	542	1		161
860712	LC	1	578	2	3	155

Appendix table 6 (cont'd)

DATE	SPECIES[a]	CNT	LEN	SEX[b]	MAT[c]	NO
b) Duncan Cove (area 16)						
860712	LC	1	594	1	11	153
860714	LC	1	612	2		163
860712	LC	1	615	2		148
860714	LC	1	615	2		160
860713	LC	1	656	2	3	157
860711	LC	1	679	2	3	145
860714	LC	1	687	2	3	159
860713	LC	1	690	2	7	156
860709	LC	1	742	2		165
		75				
TOTAL		204				

[a]Codes for species names are described in Appendix 1.

[b]1=male; 2=female.

[c]Maturity codes are described in Appendix 4.